Ana Tsuhlares Hoffman

Ex. 6 Personal Privacy (PP)

I am an intuitive geographer with extensive experience engaging with various stakeholders using data-framed storytelling to support environmental advocacy.

Career

CREATE Lab, Carnegie Mellon University, Pittsburgh, PA

Director of Air Quality Engagement

April 2020 - Present

- Leading the effort to define the CREATE Lab air quality program and navigate it's real-time and future development to work for environmental justice. I establish and sustain key partnerships with citizen teams, environmental advocacy organizations, academics and scientists, and government representatives and agencies throughout the United States, but with a clear focus on Appalachia. I develop priorities and consensus within the CREATE Lab teams and integrate the program's various projects when appropriate. I document feedback loops from partners and stakeholders on tools that serve the public, non-profit, and environmental advocacy needs. I support and manage the software, hardware, and data aggregation teams to create and innovate. I connect lead developers to communities to support the justice-oriented culture of allyship throughout CREATE Lab.
- Co-leading administrative duties for CREATE Lab air quality projects, including budget development from multiple funding sources, including the Environmental Defense Fund, the Heinz Endowments and others, hiring and staffing for each project, and working within Carnegie Mellon University to process funding acquired.

Actions I take in my position as Director of Air Quality Engagement include:

- Coordinating and supporting citizen science efforts throughout Pennsylvania, Ohio, and West Virginia using community-owned tVOC and PM monitoring networks, and modeled pollution path visualizations in partnership with organized community advocate groups, the American Geophysical Union, Environmental Health Project, and Environmental Integrity Project, as well as others.
- Co-designing permitting, and air quality monitoring policy recommendations with individuals from communities affected by unconventional oil and gas extraction and development, and supporting engagement between community partners and EPA Region 5, Ohio EPA, Ohio Department of Health, and Pennsylvania DEP.
- Establishing partnerships to strengthen local data communication work and contribute to similar efforts throughout the US. Partnership examples include Detroit AirNet based from Wayne University, Healthy Gulf and the Air Emissions Environmental Justice Working Group in Louisiana, and advocacy teams in the San Francisco Bay Area to name the most active.
- Seeking new funding opportunities to expand and support the CREATE Lab air quality program, which entails writing and processing proposals. Currently, writing a proposal for the EPA grant competition for Enhanced Air Quality Monitoring Funding under the American Rescue Plan with citizen team partners in Belmont County, Ohio.
- Organizing and facilitating several workshops and events to introduce new data access and visualization tools, namely, EnvironmentalData.org, PlumePGH.org, and VOC.createlab.org

- Representing CREATE Lab air quality work in media and at events facilitated by partner organizations to promote environmental advocacy and learning. Most notable upcoming and past events are: "Preparing for Petrochemicals" with Beaver County community (December 8, 2021), "What's that Smell?" with Energy and Environmental Law Society at the University of Pittsburgh (November 11, 2021), and "Making the Invisible Visible" with Concerned Ohio River Residents and Freshwater Accountability Project (November 2020). Media interaction with Reuters, WESA, Public Source, Pittsburgh City Paper, Allegheny Front, and others.
- Maintaining the field network of Breathe Cams, tVOC monitors, and Spectrometers owned by CREATE Lab through sustaining community relationships as well as the physical air quality monitoring technology network.

Community Coordinator and Air Quality Monitor Technician

May 2016 - May 2020

- Managed the roles and complexities of the air quality sensor evolution, deployment, operation, and understanding
- Breathe Collaborative partnership building
- Met with a variety of community and organizational stakeholders to build trusting and sustained relationships around air quality sensor networks and then installed and maintained Breathe Cam and VOC monitor networks as a technician and analyst
- Mon Valley partnership outreach and public engagement marked by several public events' planning and facilitation

Community Outreach Specialist

June 2014-January 2015

Boards and Organization Associations

Director of the Board, Allegheny County Clean Air Now (ACCAN)

December 2020 - Present

- Lead data analyst on the Board of Directors, providing data summaries and data collection support.
- Engaged with government agencies like EPA Region 3, Allegheny County Health Department, and multiple state and federal elected representatives to advocate for better enforcement of Metalico/Neville Recycling and Neville Chemical.

Member, Association of American Geographers

January 2013 - Present

Education

DePaul University, Chicago IL - Bachelor of Arts in Geography, and Art History with GIS Analyst Certification

August 2009 - December 2014

The Geography Department at DePaul offered an education focused on equity, geographic systems, and mapping.

- I presented my Appalachian Sacrifice Zones project, exploring the implications of depictions of Marcellus Shale natural gas maps at the Association of American Geographers Regional Conference in DeKalb, Illinois.
- I used GIS to map displacement in Chicago caused by gentrification as part of the ongoing work of Dr Euan Hague, department director at the time.

INTERNAL REVENUE SERVICE
P. O. BOX 2508
CINCINNATI, OH 45201

DEPARTMENT OF THE TREASURY

Date: SEP 28 2012

FRACTRACKER ALLIANCE
C/O COMMUNITY FOUNDATION FOR THE
116 MARKET ST STE 4
JOHNSTOWN, PA 15901

Employer Identification Number:
80-0844297
DLN:
17053263363012
Contact Person:
MITCHELL P STEELE ID# 31360
Contact Telephone Number:
(877) 829-5500
Accounting Period Ending:
June 30
Public Charity Status:
509(a)(3)
Form 990 Required:
Yes
Effective Date of Exemption:
June 1, 2012
Contribution Deductibility:
Yes
Addendum Applies:
No

Dear Applicant:

We are pleased to inform you that upon review of your application for tax exempt status we have determined that you are exempt from Federal income tax under section 501(c)(3) of the Internal Revenue Code. Contributions to you are deductible under section 170 of the Code. You are also qualified to receive tax deductible bequests, devises, transfers or gifts under section 2055, 2106 or 2522 of the Code. Because this letter could help resolve any questions regarding your exempt status, you should keep it in your permanent records.

Organizations exempt under section 501(c)(3) of the Code are further classified as either public charities or private foundations. We determined that you are a public charity under the Code section(s) listed in the heading of this letter.

Please see enclosed Publication 4221-PC, Compliance Guide for 501(c)(3) Public Charities, for some helpful information about your responsibilities as an exempt organization.

Letter 947 (DO/CG)

FRACTRACKER ALLIANCE

We have sent a copy of this letter to your representative as indicated in your power of attorney.

Sincerely,

Holly O. Paz

Holly O. Paz
Director, Exempt Organizations
Rulings and Agreements

Enclosure: Publication 4221-PC

Walter E. Auch III, Ph.D.

Ex. 6 Personal Privacy (PP)

EDUCATION

Ph.D. **University of Vermont** (2010) – Plant and Soil Science, specialized in Terrestrial Biogeochemistry.
Dissertation: *Modeling the interaction between climate, chemistry, and ecosystem fluxes at the global scale.*

M.S.-ABD **Virginia Tech** (2005) – Department of Forest Resources and Environmental Conservation.
Thesis: *The physical, chemical, biological, and topographic traits of strip-mines conducive to reforestation with native hardwoods.*

B.A. **University of Vermont** (2000) – Plant and Soil Science. Research interests included plant propagation and taxonomy as well as soil biology/food webs.

PROFESSIONAL AND TEACHING EXPERIENCE

FracTracker Alliance, *2012 to Present,* Great Lakes Program Coordinator, and Staff Photographer
Research and map the impacts of hydraulic fracturing and associated silica sand mining in the Upper Midwest through the lens of water, waste, and land-use impacts; Created organization's aerial image and drone footage libraries; Published 1-2 peer-review papers per year; Initiated the organization's "Energy Audio Stories" audio archive of impacted individuals; Authored or co-authored 2-3 grants per year.

***Post-Doc* Cleveland Botanical Garden, *2011-2012*, Redeveloping Vacant Land as Green Infrastructure in Great Lakes Cities, Project 949 of the Great Lakes Protection Fund (GLPF)**
Quantify the C, N, and P pools and fluxes associated with disparate restoration strategies including constructed wetlands, grasslands, temperate forests, and low-input organic community gardens. Develop idealized representations of various Vacant Land Repurposing (VLR) strategies that would maximum carbon sequestration, reduce heat island impacts, slow the urban hydrologic cycle, and generate local jobs.

***Post-Doc* Green Mountain College, *2011*, Co-investigator for the Long Term Ecological Assessment of Low Energy Farm Systems (LEAFS). Primary Investigator: Kenneth Mulder**
Work with LEAFS team to establish, maintain, and quantify inputs and outputs from the experimental plots from high-input conventional to low-input draft animal powered agriculture. Perform all modeling tasks and work with Co-PI Mulder to create literature suitable for peer-review publication and broader audiences.

AgRefresh, 2010-2011, Greenhouse Gas Modelling of Hybrid Poplar Grown for Bioenergy in Western & Eastern Oregon
Developed a model of above- and belowground CO_2, CH_4, and N_20 sources and fluxes within a novel agroforestry setting. Modeled the net Biogeochemical Capture and Storage (BCS) capability of these systems relative to native Douglas Fir and Sage Brush ecosystems in the Northwest.

University of Vermont's Drizo Lab, 2009-2011, Developed Nation Agricultural Greenhouse Gas Modeling
A) Modeled Greenhouse Gas fluxes in the agricultural sectors of developed nations, B) Phosphorus loading potential for freshwaters in developed nations, C) Quantify the potential of manure and existing agricultural grassland biomass to contribute to individual state's energy portfolios, D) Estimated the contribution of wildlife ruminants in developed nations to annual Greenhouse Gas emissions, and E) the monetize of manure and above/belowground grass biomass from a Carbon Capture and Storage (CCS) policy perspective.

BOARDS AND COMMITTEES

Buckeye Environmental Network, Chair (Fall 2019 – present), Vice Chair

NAACP Ohio Environmental Justice and Legislation Writing Advisory Board (Spring 2019 – present)

City of Shaker Heights Tree Advisory Board (2019 – present)

Faith Communities Together for a Sustainable Future (FaCT), Vice Chair (Fall 2018 – present)

Midwest Environmental Advocate's "Frac Sand Mining" working group (July 2016 – 2019)

MEMBERSHIPS

Soil Science Society of America (2003 – 2018);
Ecological Society of America (2005 - 2012)
American Geophysical Union (2005 – 2012)

ADDITIONAL WORK AND REFERENCES: *Please see appended References and Curriculum Vitae.*

Ex. 6 Personal Privacy (PP)

PUBLICATIONS

• **Recent Papers**

1. Saroka, S., Auch, T., and N. Bapat. 2021. Do terrorist/militant/insurgent groups strategically target oil and gas infrastructure, and if so, does this affect global energy prices. Target Journal *Conflict Management and Peace Science* or *The Journal of Conflict Resolution.*
2. Auch, T., Warren, J., and T. Oatts. 2021. A Methodology for Determining the Extent of Intrastate Gas Gathering Pipelines in Ohio, West Virginia, and Pennsylvania. Target Journal *Journal of Environmental Geography.*
3. Bratman, E., Auch. T., and B. Stinchfield. 2022. The Fracking Frontier in the United States: A Case Study of Foreign Investment, Civil Liberties and Land Ethics in the Shale Industry. *Development and Change.* Spring/Summer 2022
4. Palmer, R.C., Short, D., and **Auch, W.E.** 2019. The Human Right to Water and Unconventional Energy. In *Regulating Water Security in Unconventional Oil and Gas*, Eds. Buono, R.M., Gunn, E.L., McKay, Staddon, C., Springer, Chapter 3, Pgs. 39-67.
5. Stinchfield, B., **T. Auch**, and E. Bratman. 2020. Energy Security, International Investment, and Democracy: The Case of the United States Shale Oil and Gas Industry. *Democracy and Security.* Volume 17
6. Strube, J., Thiede, B., and **W.E. Auch**. 2020. Proposed pipelines and environmental justice: Exploring the association between race, socioeconomic status, and pipeline proposals in the United States. *Rural Sociology.* Fall, 2020.
7. Palmer, R.C., Short, D., and **Auch, W.E.** 2018. The Human Right to Water and Unconventional Energy. *International Journal of Environmental Research and Public Health.* 15(9), 1858.
8. Malone, S., Kelso, M., **Auch, W.E.** 2015. Inconsistencies with Data from Shale Gas and Oil Basins. *Journal of Environmental Science and Health, Part A.*
9. Copenheaver, C.A., J.M. Matthews, J.M. Showalter, and **W.E. Auch.** 2008. Forest stand development patterns in the southern Appalachians. *Northeastern Naturalist.* 13(4):477-494.
10. **Auch, W.E**., J.A. Burger, and D.O. Mitchem. 2005. Survival and growth of early- and late-successional Appalachian hardwoods on reclaimed mined land. *In* R.I. Barnhisel (ed.) Working together for innovative Reclamation. 22th National Conf. American Society of Mining and Reclamation. June 19-23, 2005. Breckenridge, CO.
11. **Auch, W**.E., J.A. Burger, and D.O. Mitchem. 2005. Hardwood stocking after five years on reclaimed mined land in the Central Appalachians. *In* R.I. Barnhisel (ed.) Working together for innovative Reclamation. 22th National Conf. American Society of Mining and Reclamation. June 19-23, 2005. Breckenridge, CO.
12. **Burger, J.**, Amichev, B., Auch, W.E., Showalter, J., and D. Mitchem. 2009. Reforestation of mined land for productivity land uses and environmental quality. *In* 2005 Powell River Project Research and Progress Reports.
13. **Burger, J.**, Amichev, B., Auch, W.E., Showalter, J., and D. Mitchem. 2006. Reforestation of mined land for productivity land uses and environmental quality. *In* 2004 Powell River Project Research and Progress Reports.
14. **Auch, W.E.,** J.A. Burger, and D.O. Mitchem. 2004. Influence of site factors on the survival and growth of early- and late-successional Appalachian hardwoods on reclaimed mined land. p. 240-266. *In* R.I. Barnhisel (ed.) Working together for innovative Reclamation. 21th National Conf. American Society of Mining and Reclamation. April 18-22, 2004. Morgantown, WV.
15. **Burger, J.**, Amichev, B., Auch, W.E., Showalter, J., and D. Mitchem. 2003. Reforestation of mined land for productivity land uses and environmental quality. *In* 2003 Powell River Project Research and Progress Reports.
16. Burger, J.A., **W.E. Auch**, R.G. Oderwald, and M.H. Eisenbies. 2003. White pine growth and yield on a mined site in Virginia: response to thinning and pruning. p. 240-266. *In* R.I. Barnhisel (ed.) Working together for innovative Reclamation. 20th National Conf. American Society of Mining and Reclamation. June 3-6, 2003. Billings, MT.

SHANNON M. SMITH

Ex. 6 Personal Privacy (PP)

EDUCATION

- Project Management certification, Monterey Institute of International Studies. *June 2014, Washington, D.C.*
- BA in Cultural Anthropology, Reed College. *May 2014, Portland, OR*
- International Baccalaureate, United World College. *May 2010, Montezma, NM*

EXPERIENCE

FRACTRACKER ALLIANCE

Executive Director, *October 2021 – Present*

- Fundraising – Cultivate and maintain relationships with funders and donors to steadily increase revenue. Write grant applications and reports.
- Administrative oversight – Determine payroll allocations based on activities and funding sources. Approve timesheets and expenses. Assure legal compliance with state and federal requirements. Update the Board of Trustees on financial status, operational issues, and programmatic progress.
- Strategic planning & implementation – Ensure project deliverables and deadlines adhere to grant agreements. Host team strategy planning sessions.
- Staff management – Review staff monthly reports and provide feedback. Regularly check in with each staff member to troubleshoot issues and provide programmatic guidance. Solicit feedback and improve internal operational processes and communications practices accordingly.
- Public representation – Represent FracTracker at a variety of events, panels, grantee focus groups, etc.

FRACTRACKER ALLIANCE

Manager of Communications & Development, *June 2019 – Present*

- Communications – Write and edit articles on key issues related to oil and gas development. Produce videos and audio stories to engage diverse stakeholders in specific campaign goals. Refine the website's design and content via User Experience (UX) research.
- Fundraising – Plan annual fundraisers, one of which increased donations 74% from 2019 to 2020. Identify and cultivate new prospective donors and manage relationships with existing donors. Assist funder prospecting and grant proposal development to ensure an $875k+ annual budget.
- Alliance building – Cultivate and maintain relationships with dozens of partner organizations. Formed a campaign group of over 30 individuals from 14 organizations to address issues related to the Falcon Pipeline, significantly increasing media coverage of its regulatory and safety issues.
- Event planning – Hosted over a dozen events including an environmental justice docufilm series, an international exchange program, webinars with experts in environmental health, and FracTracker's annual award program. Spearheaded a national event with Break Free From Plastic, which was attended by the Department of Energy, state and federal regulators and elected officials, grassroots activists, and environmental nonprofit leaders from across the country.

SECOND MILE HAITI

Communications & Development Consultant, *October 2018 – September 2020, Haiti/United States*

- Communications – Re-designed marketing collateral, increasing the newsletter list by 10% within the first month of my contract.
- Development – Managed fundraising campaigns, including an annual giving campaign that increased donations by 25% compared to the previous year. Wrote successful grant proposals for up to $300k. Implemented strategies to increase average individual donation size and improve donor retention.

DAI

Community Grants Specialist, *October 2018 – December 2019, Cap-Haitien, Haiti*

- Grassroots development – Partnered with local government officials to host community development forums.
- Strategic planning & grant giving – Designed organizational strategy planning exercises and hosted workshops for community-based organizations to manage grants up to $25,000.

SUSTAINABLE ORGANIC INTEGRATED LIVELIHOODS (SOIL)

Marketing & Sales Adviser, *Jan 2016 – Sept 2018, Cap-Haitien and Port-au-Prince, Haiti*

- Marketing strategy – Led multiple marketing teams in planning and implementing marketing budgets and strategies. Trained sales teams of over 50 employees on customer service, prospect identification, and conversion strategies.
- Data management – Designed custom customer relationship management systems in Excel and Salesforce. Created input forms in the mobile app Taroworks.
- Research – Designed extensive satisfaction surveys and other user feedback surveys. Trained and supervised enumerators. Formed a research partnership with the Haitian water and sanitation ministry.

SUSTAINABLE ORGANIC INTEGRATED LIVELIHOODS (SOIL)

Program Manager, *Dec 2014 - Dec 2015, Cap-Haitien and Port-au-Prince, Haiti*

- Media relations – Ensured consistent and high-quality promotional content and media coverage by collaborating with filmmakers, photographers, graphic designers, and journalists from National Geographic, BBC, Al Jazeera, New York Times, and Vice News.
- Strategic communications – Managed the organization's digital brand across social media platforms, blog, and newsletter. Presented SOIL's work at conferences. Gave tours and presentations to major donors and potential donors. Increased the organization's Facebook following from 2,500 to over 10k.

SUSTAINABLE ORGANIC INTEGRATED LIVELIHOODS (SOIL)

Program Assistant, *July 2014 - Nov 2014, Cap-Haitien and Port-au-Prince, Haiti*

- Administrative support – Ran weekly finance reports and monthly payroll. Created staff contracts.
- Fundraising – Increased monthly recurring donations through fundraising campaigns. Secured program budgets by writing winning grant applications for $20,000+.

TRAIL OF SEEDS

Co-Founder & Executive Director, *June 2011 – January 2014, Various international locations*

- Grassroots development – Achieved key improvements for community-based organizations and activists by designing media and strategy workshops and allocating micro-grants.

March 24, 2022

Shannon Smith, Executive Director
FracTracker Alliance
216 Franklin Street, Suite 400
Johnstown, PA 15901
smith@fractracker.org

Dear Ms. Smith,

Since the Marcellus shale gas boom took off in western Pennsylvania ten years ago, the Commonwealth has emerged as the second largest extractor of natural gas in the United States, leapfrogging ahead of Louisiana and Oklahoma, long known for their gas production, and closing fast on Texas. **Pennsylvania's natural gas output has increased forty-fold since 2010, faster than any state.**

The rapid expansion of those operations has had a devastating impact on local communities, particularly two rural communities in Washington County: Robinson and Smith Townships. Once home to generational farmland, both communities have been overwhelmed by the highly industrialized shale gas operations including well pads, compressor stations, processing plants, pigging operations and pipelines. Emissions associated with this rapid buildout present a slew of health risks to communities. These facilities and their operations release fine particulates, ozone and its precursors, toxic fumes, volatile organic compounds (VOCs), hazardous air pollutants (HAPs) and hydrogen sulfide into the environment. Individuals living close to natural gas production facilities have reported experiencing adverse health impacts including respiratory problems like asthma and coughing, eye, nose, and throat irritation, headaches, nausea, dizziness, trouble sleeping, and fatigue. Studies have documented these, and other serious health risks associated with these facilities, including an increased risks for adverse pregnancy outcomes as well as asthma and other respiratory ailments. These facilities have been authorized without an accurate assessment of the cumulative impacts to public health and the natural resources of these once mostly agricultural communities.

At the same time shale gas operations were skyrocketing, the Pennsylvania Department of Environmental Protection (PA DEP) lost 15 percent of its staff—more than 400 positions—between 2008 and 2018. This significant reduction in resources means less industry oversight, potentially increasing risks to communities.

Over the past ten years, the Environmental Integrity Project (EIP) has been working closely with local residents in Robinson and Smith Townships to highlight the rapid expansion of shale gas operations, the impacts the buildout has had on these communities, and the need for common sense public health protection public health. The Environmental Integrity Project (EIP) is a 501 (c)(3) nonpartisan, nonprofit watchdog organization that advocates for effective enforcement of environmental laws. Comprised of former EPA enforcement attorneys, public interest lawyers, analysts, investigators, and community organizers, EIP has three goals: (1) To illustrate through objective facts and figures how the failure to enforce or implement environmental laws increases pollution and harms public health; (2) To hold federal and state agencies, as well as individual corporations, accountable for failing to enforce or comply with environmental laws; and (3) To help local communities obtain the protections of environmental laws.

EIP partners with local resident Cathy "Cat" Lodge and her neighbors to document the growing number of operations surrounding communities and advocate for stronger protections through participation in permitting and regulatory oversight processes. Cat's local, on-the-ground perspective and dedication has helped EIP provide more targeted community support and training over the years and has resulted in increased public participation in decision making. In addition, she was a key partner in blocking a proposed natural gas plant in Robinson Township that was not in compliance with the law. EIP hired Cat as a part-time consultant and continues to work closely with Cat and the Robinson and Smith Township communities.

Working with Cat, EIP has identified several large, polluting facilities in these communities, including a natural gas compressor station that is the third largest source of benzene emission in southwestern Pennsylvania and two cryogenic plants that regularly emit dangerous flare emissions:

- MarkWest 3 Brother Compressor Station
- MarkWest Harmon Creek Cryogenic Processing Plant
- ETC Northeast Pipeline Revolution Cryogenic Processing Plant
- ETC Northeast Pipeline Rover Compressor Station
- MarkWest Smith Compressor Station
- MarkWest Cibus-Imperial Compress Complex

These facilities are part of the ever-expanding shale gas infrastructure that has infiltrated the rural communities of Robinson and Smith Townships and surround homes, farms, and schools. The PA DEP does not require adequate monitoring of emissions from these facilities or of the ambient air quality in these communities. PA DEP also does not accurately account for the cumulative public health impacts that multiple polluting facilities can have on communities like Cat's. EIP's role in this project is to work with Cat, other community members and project partners to expand existing ambient air quality monitoring near these facilities, share the results with the community through webinars and detailed reports, and educate local and state decisionmakers on the need for additional monitoring and policies to address cumulative public health impacts. Specifically, EIP will provide Method 325 ambient air monitoring for four HAPs including - benzene, ethylbenzene, toluene and xylene – at 12 locations near these facilities. As a consultant for EIP, Cat will lead the field sampling team.

As part of this project EIP will:

- Provide ambient air quality monitoring for benzene, ethylbenzene, toluene, and xylene at 12 locations (alongside existing Airviz tVOC monitors) using EPA Method 325 sorbent tubes for a period of 12 months;
- Work with FracTracker to establish and coordinate a team to facilitate sampling deployment and retrieval and oversee team;
- Review and analyze sample results;
- Communicate sample results and analysis to community members through quarterly webinars and detailed fact sheets and reports;
- Facilitate communications between community members and the PA DEP air quality staff about community concerns; and
- Upon completion of the 12-month monitoring project, summarize sample results and analysis and provide specific recommendations about monitoring and policies to address cumulative public health impacts from oil and gas operations.

We appreciate the opportunity to contribute to this important project and are excited to work with FracTracker Alliance and other partners on the Robinson/Smith AirWatch Project.

Respectfully submitted,

Lisa Graves Marcucci

Lisa Graves Marcucci
PA Coordinator, Community Outreach
Environmental Integrity Project (EIP)
lgmarcucci@environmentalintegrity.org

OMB Number: 2030-0020
Expiration Date: 06/30/2024

Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance

Note: Read Instructions before completing form.

I. A. Applicant/Recipient (Name, Address, City, State, Zip Code)

Name: FracTracker Alliance.

Address: 216 Franklin St Ste 400

City: Johnstown

State: PA: Pennsylvania Zip Code: 15901-1911

B. DUNS No. 068581459

II. Is the applicant currently receiving EPA Assistance? ☐ Yes ☒ No

III. List all civil rights lawsuits and administrative complaints pending against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7.)

n/a

IV. List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that allege discrimination based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective actions taken. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7.)

n/a

V. List all civil rights compliance reviews of the applicant/recipient conducted by any agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3))

n/a

VI. Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below.

☐ Yes ☒ No

a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b).

☐ Yes ☐ No

b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable by persons with disabilities, explain how a regulatory exception (40 C.F.R. 7.70) applies.

VII. Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex, age, or disability in its program or activities? (40 C.F.R 5.140 and 7.95)	☒ Yes	☐ No
a. Do the methods of notice accommodate those with impaired vision or hearing?	☒ Yes	☐ No
b. Is the notice posted in a prominent place in the applicant's offices or facilities or, for education programs and activities, in appropriate periodicals and other written communications?	☒ Yes	☐ No
c. Does the notice identify a designated civil rights coordinator?	☐ Yes	☒ No
VIII. Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves? (40 C.F.R. 7.85(a))	☐ Yes	☒ No
IX. Does the applicant/recipient have a policy/procedure for providing access to services for persons with limited English proficiency? (40 C.F.R. Part 7, E.O. 13166)	☐ Yes	☒ No

X. If the applicant is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator.

n/a

XI. If the applicant is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or Internet Address for, or a copy of, the procedures.

n/a

For the Applicant/Recipient

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official	B. Title of Authorized Official	C. Date
Shannon Smith	Executive Director	03/25/2022

For the U.S. Environmental Protection Agency

I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preaward compliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisions of 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statures and EPA regulations.

A. *Signature of Authorized EPA Official	B. Title of Authorized Official	C. Date

*** See Instructions**

Instructions for EPA FORM 4700-4 (Rev. 06/2014)

General. Recipients of Federal financial assistance from the U.S. Environmental Protection Agency must comply with the following statutes and regulations.
Title VI of the Civil Rights Acts of 1964 provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. The Act goes on to explain that the statute shall not be construed to authorize action with respect to any employment practice of any employer, employment agency, or labor organization (except where the primary objective of the Federal financial assistance is to provide employment). Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act provides that no person in the United States shall on the ground of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under the Federal Water Pollution Control Act, as amended. Employment discrimination on the basis of sex is prohibited in all such programs or activities. Section 504 of the Rehabilitation Act of 1973 provides that no otherwise qualified individual with a disability in the United States shall solely by reason of disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Employment discrimination on the basis of disability is prohibited in all such programs or activities. The Age Discrimination Act of 1975 provides that no person on the basis of age shall be excluded from participation under any program or activity receiving Federal financial assistance. Employment discrimination is not covered. Age discrimination in employment is prohibited by the Age Discrimination in Employment Act administered by the Equal Employment Opportunity Commission. Title IX of the Education Amendments of 1972 provides that no person in the United States on the basis of sex shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance. Employment discrimination on the basis of sex is prohibited in all such education programs or activities. Note: an education program or activity is not limited to only those conducted by a formal institution. 40 C.F.R. Part 5 implements Title IX of the Education Amendments of 1972. 40 C.F.R. Part 7 implements Title VI of the Civil Rights Act of 1964, Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act, and Section 504 of The Rehabilitation Act of 1973. The Executive Order 13166 (E.O. 13166) entitled; "Improving Access to Services for Persons with Limited English Proficiency" requires Federal agencies work to ensure that recipients of Federal financial assistance provide meaningful access to their LEP applicants and beneficiaries.

Items "Applicant" means any entity that files an application or unsolicited proposal or otherwise requests EPA assistance. 40 C.F.R. §§ 5.105, 7.25. "Recipient" means any entity, other than applicant, which will actually receive EPA assistance. 40 C.F.R. §§ 5.105, 7.25. "Civil rights lawsuits and administrative complaints" means any lawsuit or administrative complaint alleging discrimination on the basis of race, color, national origin, sex, age, or disability pending or decided against the applicant and/or entity which actually benefits from the grant, but excluding employment complaints not covered by 40 C.F.R. Parts 5 and 7. For example, if a city is the named applicant but the grant will actually benefit the Department of Sewage, civil rights lawsuits involving both the city and the Department of Sewage should be listed. "Civil rights compliance review" means any review assessing the applicant's and/or recipient's compliance with laws prohibiting discrimination on the basis of race, color, national origin, sex, age, or disability. Submit this form with the original and required copies of applications, requests for extensions, requests for increase of funds, etc. Updates of information are all that are required after the initial application submission. If any item is not relevant to the project for which assistance is requested, write "NA" for "Not Applicable." In the event applicant is uncertain about how to answer any questions, EPA program officials should be contacted for clarification. * Note: Signature appears in the Approval Section of the EPA Comprehensive Administrative Review For Grants/Cooperative Agreements & Continuation/Supplemental Awards form.

EPA KEY CONTACTS FORM

OMB Number: 2030-0020
Expiration Date: 06/30/2024

Authorized Representative: *Original awards and amendments will be sent to this individual for review and acceptance, unless otherwise indicated.*

Name: Prefix: | First Name: Shannon | Middle Name:
Last Name: Smith | Suffix:

Title: Executive Director

Complete Address:

Street1: 216 Franklin St Ste 400
Street2:
City: Johnstown | State: PA: Pennsylvania
Zip / Postal Code: 15901-1911 | Country: USA: UNITED STATES

Phone Number: 8144490659 | **Fax Number:**

E-mail Address: smith@fractracker.org

Payee: *Individual authorized to accept payments.*

Name: Prefix: | First Name: Shannon | Middle Name:
Last Name: Smith | Suffix:

Title: Executive Director

Complete Address:

Street1: 216 Franklin St Ste 400
Street2:
City: Johnstown | State: PA: Pennsylvania
Zip / Postal Code: 15901-1911 | Country: USA: UNITED STATES

Phone Number: 4122127436 | **Fax Number:**

E-mail Address: smith@fractracker.org

Administrative Contact: *Individual from Sponsored Programs Office to contact concerning administrative matters (i.e., indirect cost rate computation, rebudgeting requests etc).*

Name: Prefix: | First Name: Shannon | Middle Name:
Last Name: Smith | Suffix:

Title: Executive Director

Complete Address:

Street1: 216 Franklin St Ste 400
Street2:
City: Johnstown | State: PA: Pennsylvania
Zip / Postal Code: 15901-1911 | Country: USA: UNITED STATES

Phone Number: 4122127436 | **Fax Number:**

E-mail Address: smith@fractracker.org

EPA KEY CONTACTS FORM

Project Manager: *Individual responsible for the technical completion of the proposed work.*

Name: Prefix: Dr. First Name: Ted Middle Name:

Last Name: Auch Suffix:

Title: Great Lakes Program Coordinator

Complete Address:

Street1: 216 Franklin St Ste 400

Street2:

City: Johnstown State: PA: Pennsylvania

Zip / Postal Code: 15901-1911 Country: USA: UNITED STATES

Phone Number: 8023436771 **Fax Number:**

E-mail Address:

EPA Form 5700-54 (Rev 4-02)

Other Attachment File(s)

*** Mandatory Other Attachment Filename:** 1236-Proof of nonprofit status - FracTracker Allia

Add Mandatory Other Attachment | Delete Mandatory Other Attachment | View Mandatory Other Attachment

To add more "Other Attachment" attachments, please use the attachment buttons below.

Add Optional Other Attachment | Delete Optional Other Attachment | View Optional Other Attachment

Project Narrative File(s)

*** Mandatory Project Narrative File Filename:** 1246-Final Pennsylvania Monitoring Grant Application.p

Add Mandatory Project Narrative File | Delete Mandatory Project Narrative File | View Mandatory Project Narrative File

To add more Project Narrative File attachments, please use the attachment buttons below.

Add Optional Project Narrative File | Delete Optional Project Narrative File | View Optional Project Narrative File

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 02/28/2022

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Enhanced Air Quality Monitoring for Communities	66.034	$	$	$	$	$
2.						
3.						
4.						
5. Totals		$	$	$	$	$

Standard Form 424A (Rev. 7- 97)
Prescribed by OMB (Circular A -102) Page 1

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1) Enhanced Air Quality Monitoring for Communities	(2)	(3)	(4)	Total (5)
a. Personnel	$ 46,200.00	$	$	$	$ 46,200.00
b. Fringe Benefits	6,468.00				6,468.00
c. Travel	5,440.00				5,440.00
d. Equipment	136,152.00				136,152.00
e. Supplies	37,405.00				37,405.00
f. Contractual	0.00				0.00
g. Construction	0.00				0.00
h. Other	177,860.00				177,860.00
i. Total Direct Charges (sum of 6a-6h)	409,525.00				$ 409,525.00
j. Indirect Charges	20,476.00				$ 20,476.00
k. TOTALS (sum of 6i and 6j)	$ 430,001.00	$	$	$	$ 430,001.00
7. Program Income	$ 0.00	$	$	$	$ 0.00

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Prescribed by OMB (Circular A -102) Page 1A

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8. Enhanced Air Quality Monitoring for Communities	$	$	$	$
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)	$	$	$	$

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 336,918.00	$ 187,661.00	$ 50,440.00	$ 48,377.00	$ 50,440.00
14. Non-Federal	$				
15. TOTAL (sum of lines 13 and 14)	$ 336,918.00	$ 187,661.00	$ 50,440.00	$ 48,377.00	$ 50,440.00

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (YEARS) (b)First	(c) Second	(d) Third	(e) Fourth
16. Enhanced Air Quality Monitoring for Communities	$ 336,917.00	$ 93,084.00	$ 0.00	$ 0.00
17.				
18.				
19.				
20. TOTAL (sum of lines 16 - 19)	$ 336,917.00	$ 93,084.00	$ 0.00	$ 0.00

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:

22. Indirect Charges:

23. Remarks:

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OMB Number: 4040-0004
Expiration Date: 12/31/2022

Application for Federal Assistance SF-424

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received: 03/25/2022

4. Applicant Identifier: HMNYYBMCWQ48

5a. Federal Entity Identifier: HMNYYBMCWQ48

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: FracTracker Alliance.

* b. Employer/Taxpayer Identification Number (EIN/TIN): 80-0844297

* c. Organizational DUNS: 0685814590000

d. Address:

* Street1: 216 Franklin St Ste 400
Street2:
* City: Johnstown
County/Parish:
* State: PA: Pennsylvania
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 15901-1911

e. Organizational Unit:

Department Name:

Division Name:

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:
* First Name: Shannon
Middle Name:
* Last Name: Smith
Suffix:

Title: Executive Director

Organizational Affiliation: FracTracker Alliance.

* Telephone Number: 8144490659
Fax Number:

* Email: smith@fractracker.org

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

M: Nonprofit with 501C3 IRS Status (Other than Institution of Higher Education)

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.034

CFDA Title:

Surveys, Studies, Research, Investigations, Demonstrations, and Special Purpose Activities Relating to the Clean Air Act

*** 12. Funding Opportunity Number:**

EPA-OAR-OAQPS-22-01

* Title:

Enhanced Air Quality Monitoring for Communities

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

1234-Areas Affected by Project attachment.p | Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Robinson/Smith AirWatch Project: A Case for Assessing Cumulative Air Pollution Impacts from Shale Gas Operations using Community-Based Ambient Air Monitoring and Air Sampling Technology in Robinson an

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: PA-013 * b. Program/Project: PA-014

Attach an additional list of Program/Project Congressional Districts if needed.

1235-Additional Congressional Districts.pd | Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 11/01/2022 * b. End Date: 05/01/2024

18. Estimated Funding ($):

* a. Federal	430,001.00
* b. Applicant	0.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	430,001.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name: Shannon

Middle Name:

* Last Name: Smith

Suffix:

* Title: Executive Director

* Telephone Number: 8144490659 Fax Number:

* Email: smith@fractracker.org

* Signature of Authorized Representative: Shannon Smith * Date Signed: 03/25/2022

Robotics Institute
Carnegie Mellon

5000 Forbes Ave., NSH 4629
Pittsburgh, PA 15213
Phone: (650) 575-1612

FracTracker Alliance
216 Franklin St Ste 400
Johnstown, PA 15901-1911 USA

Dear Shannon Smith, Executive Director,

Carnegie Mellon University CREATE Lab writes to eagerly attest our commitment to partner in the project, "A Case for Assessing Cumulative Air Pollution Impacts from Shale Gas Operations using Community-Based Ambient Air Monitoring and Air Sampling Technology in Robinson and Smith Townships, Washington County, Pennsylvania". CREATE Lab will create a pollution experience and data tracking website, editable by the community facilitating the air monitoring networks, known as Robinson/Smith Air Watch. We will provide and maintain the Environmental Sensing Data Repository (ESDR) infrastructure service for aggregation of air monitor data, on which parts of this proposal depend, including the EHP's AirView analysis. CREATE Lab will maintain websites, voc.createlab.org and environmentaldata.org as publicly accessible data access points throughout the course of the project. Lab staff will add new sensors acquired through the grant into these platforms, and iterate on platforms based on community, partner, and government stakeholder feedback. CREATE Lab will spend approximately 10hours/month engaging in strategic planning and community engagement, including supporting the creation of materials for quarterly data reports. CREATE Lab will engage partners in the project and create tailored analyses and visualizations that can enhance reports, such as forward dispersion and back trajectory modeling.

We are excited to build upon years of collaboration with FracTracker Alliance and the other partner organizations for this project. We have worked together to engage community-based organizations and respond to needs to map Unconventional Oil and Gas Development (UOGD), make monitoring data and monitoring locations publicly accessible information, and to generally be reliable partners to the environmental advocacy efforts we support. We see this project as a continuation of that work and are very hopeful for the opportunity to expand and enhance our current scope.

Thank you for submitting this application for funding under the EPA-OAR-OAQPS-22-01 Enhanced Air Quality Monitoring for Communities Grant.

Sincerely,

Ana Tsuhlares Hoffman she/her
Director of Air Quality Engagement
Carnegie Mellon University CREATE Lab

Cathy Lodge

Ex. 6 Personal Privacy (PP)

March 24, 2022

Shannon Smith, Executive Director
FracTracker Alliance
216 Franklin St, Ste 400
Johnstown, PA 15901

Dear Ms. Smith,

I live in Southwestern Pennsylvania, Washington County which has been heavily drilled for Marcellus shale gas over the past 15 years.

When Marcellus shale gas development (MSGD) first came to my area, it was promoted as another way of farming. We were promised that the only thing emitting from MSGD operations would be steam and that no pollution would come from fracking. We were told the flaring at well pads and plants burn at 100% clean. We were told that the industry was heavily regulated by the state and federal regulations, so that our local government would not need to impose anything to slow down or stop permits. Our concerns of pollution or environmental impact were dismissed or discouraged. We were NOT told that so many federal safeguards are missing from oil and gas production such as the Safe Drinking Water Act, Clean Water Act, Clean Air Act, Resource Conservation and Recovery Act and National Environmental Policy Act. Farmers were promised riches and prosperity to lease their land and companies pitted neighbor against neighbor and divided our communities. We later learned the divisions in our community were being orchestrated by the use of counterinsurgency experts against us in our own communities. A 2011 *Pittsburgh Post-Gazette* article noted, "Marcellus Shale gas drilling spokesmen at an industry conference in Houston said their companies are employing former military counterinsurgency officers and recommended using military-style psychological operation strategies, or psyops, to deal with media inquiries and citizen opposition to drilling in Pennsylvania communities." https://www.post-gazette.com/news/environment/2011/11/13/Drillers-using-counterinsurgency-experts/stories/201111130191

Sadly, the deck was stacked against us and as a result my rural town has gone from farming to fracking!

Our silos are being replaced with condensate tanks and many of our barns are becoming compressor stations. Fences are being replaced with pipelines and the pigs are not animals any longer. They are metal cleaning devices connected to pipelines that vent and flare dangerous pollution into our country air.

I am concerned for the health of my family and community!

MarkWest pigging near Fort Cherry School District (2015)

I have watched the Marcellus shale buildout in my area grow quickly and have wondered who is looking at the cumulative impact that all this industry is having on the residents living among it? I have asked officials at my local, county and state level if this industry is safe to live by. I have emailed the Pennsylvania Department of Environmental Protection (PA DEP), asking if the venting that is blowing on my house from a well pad behind me is safe to breathe. They only answer back that I should consult with my family doctor. But my doctor did not issue the permits allowing the industrial activity 2000 feet upwind of my home – the PA DEP did! And, unfortunately, no one at the PA DEP seems interested in tracking this ever-expanding industrialization of our farming communities. So, my neighbors and I have been left to do this tracking – basic as it may be – because no one from the regulatory agency is considering the cumulative impacts all this industrial infrastructure is having on the families, farms, livestock, crops and natural resources in our area.
I have learned over the years that pollution from shale gas development appears to be causing residents health problems ranging from nosebleeds and asthma to an increased risk for cancer. My county has seen a cluster of childhood cases of cancer, including Ewing Sarcoma, a very rare cancer.

Just because one cannot see what is coming off MSGD facilities, does not mean it is not there and not dangerous to one's health.

I wanted more information!

Years ago, I teamed up with Lisa Graves Marcucci and the Pennsylvania team at the Environmental Integrity Project (EIP) and together we started a professional relationship that not only provided much needed guidance to myself and my community, but it has turned into a working relationship that has allowed me to continue to be the eyes and ears of my community, but also act as a consultant to the EIP team as we seek all the protections the laws allow for my community. For the past 6 years I have been working as a part-time contractor with EIP.

Throughout the years, there have been valuable opportunities for my collaboration with EIP and each one has resulted in moving closer to the goals of more accountability and oversight of the shale gas industry. Working with EIP, my community and I have been afforded opportunities that would not have existed without my partnership with them. Some of those opportunities include the following:

- Valuable experience in how to effectively access public documents and use those facts as part of citizen testimony during public meetings and hearings
- Guidance on how to be an effective presenter at local municipal meetings
- Opportunities to meet with PA DEP air quality staff to discuss community concerns
- Assistance in preparing highly technical comments on a number of permit applications for facilities affecting my community

It has been a two-way street: I have also provided EIP with valuable insights and assistance that in at least one case resulted in the cancellation of yet another shale gas-related pollution source. Due to our community team's effort of tracking a proposed gas plant project the evidence we collected proved the project had not properly commenced construction resulting in the plan approval being withdrawn. This marked the first clear victory our community has had. We look forward to our continuing working relationship with EIP.

Most of our efforts, however, have resulted in some progress but mostly more questions than answers. Still the issue of lack of any cumulative impact analysis for new, modified and expanded facilities in my community remains elusive.

One example of a such a project was my work with Lisa Graves Marcucci and a cohort organized through American Geophysical Union (AGU) and their Thriving Earth Exchange. We launched our project, Accounting Cumulative Impacts of Highly Industrialized Infrastructure Robinson and Smith Township PA.
https://thrivingearthexchange.org/project/robinsonsmithtownships-pa/

We were connected with scientist Albert Presto of Carnegie Mellon University (CMU). Dr. Presto is a Research Professor who focuses on pollutant emissions from energy extraction and is a member of the Center for Atmospheric Particle Studies (CAPS). We attempted to gather air pollution data which represented some of the cumulative impact on our air from the Marcellus shale gas development in my area. Our biggest challenge was our limited budget and not having enough air monitors placed around the community. We collected data from limited in-home and exterior monitors, reviewed public records from the Pennsylvania Department of Environmental Protection and Allegheny County Health Department and used FLIR (Forward Looking Infrared) camera imaging with help from Earthworks.

We hoped to call attention to the fact that there are certain rural communities that are experiencing disproportionate risks when it comes to impacts from shale gas expansion. Residents want decision-makers to recognize that a single project cannot be considered in a vacuum; full consideration must be given to cumulative impacts when weighing whether another project should go forward. It is important for everyone to know, *"We Are Here Too!"* However, the focus has been and continues to be on what industry wants with little to no regard for the residents affected.

Our AGU project resulted in several important, but very limited developments. Those included an increase in better communication between PA DEP staff, local government officials and local concerned residents and advocacy teams. As a result of the improved communications, the PA DEP increased oversight by a newly hired Air Quality Inspector, specifically assigned to the Robinson Township and Smith Township areas. And PA DEP is considering the addition of at least one more stationary monitor closer to some of our project's sites. Finally, Carnegie Mellon University CREATE Lab (CREATE Lab), deployed VOC monitors in four Washington County, PA locations- near several of the project sites- on a permanent basis. This is a wonderful start but so much more is still needed.

Then COVID hit!

While the world stayed home during the pandemic, so too did the PA DEP inspectors. Citizens were told that the regular on-site visits that had previously been part of the inspectors' schedules had been halted during the pandemic. Inspectors were only dispatched during significant events, as determined by the Department. While there was a prolonged pause in the routine site inspections, industry kept right along requesting and receiving permits for MSGD. Residents were not able to attend public meetings, hearings or conduct in-person file reviews. During COVID, townships limited the number of residents allowed into meetings when MSGD were being considered, further limiting the public's access to these important discussions. There was an unfair advantage given to industry representatives during the local meetings. For example, industry members were allowed to attend, only four members of the public were ever allowed into some of the township's buildings. Opportunities for engagement with the PA DEP were dramatically affected by the pandemic, closing doors that were routinely open were not available and documents were not always provided online. As a result, concerned residents had to step up their vigilance in maintaining access to public participation aspects as we continued our local efforts to monitor the pollution in the air.

Since our AGU project even more buildout has occurred and the emissions continue to increase. In Smith Township, two different companies' cryogenic/fractionation plants located 2,700 feet apart continue to have chronic flaring events on a regular basis. This runs counter to what the communities were told during the state and local permit review processes. Initially, each company represented their emission's flare as a safety device that would only need to be lit in case of an emergency. We have learned that this was misrepresented and the flaring actually occurs on a 24/7 basis. At times, the plant experiences an air emission upset or malfunction. These malfunctions result in black smoke being emitted from their large flares into our air.

Energy Transfer Revolution cryogenic/fractionation plant air upset September 1, 2018 (Labor Day weekend)

Industry is expected to self-report these incidents, but oftentimes it happens on weekends, after hours or on holidays when the DEP is short staffed or not at all available. Residents call in complaints to the DEP and the National Response Center. We keep journals, watch our low-cost air monitors for spikes, take photos and recordings of the incidents to demonstrate our concerns to state regulators. This has become necessary as the companies have contradicted resident's complaints. In one instance, I was asked to verify that I had not doctored a photo I took of a black plume visible from one of the company's flare stacks as the company denied the event. It is truly frustrating to know that the PA DEP takes the companies at their word, but when residents send photos/videos, the authenticity is questioned. I believe this is further proof that continuous emissions monitors must become part of industry's operating permits so that the facts are available to everyone without question. Continuous emission monitors and cameras on the facilities showing real-time data would put an end to questioning residents' claims of MSGD flare upsets.

American Rescue Plan Act of 2021 (ARP) funded monitors are needed!

The massive MSGD is still growing. Several facilities in my area have plans to expand. More well pads are going in and others are being re-fracked. Gathering and transmission lines will move the gas about and the pigging and processing of natural gas will continue to emit pollutants.

My neighbors and I have tried everything we can think of. We have had tremendous support from wonderful partner organizations like EIP, Create Lab team, SW PA Environmental Health Project (EHP) and FracTracker Alliance. Although these collaborative efforts have made some progress there remains much more work to be done and still so many questions remain unanswered. It is our hope that being a recipient of this grant would allow us to further our case study into the need for more stationary monitors in the affected areas. The additional air monitoring project we are calling ***Robinson/Smith AirWatch***, would be used to evaluate the need for additional pollution monitoring and the addition of a regulatory requirement to include a comprehensive cumulative impact analysis of what is already in a community before any new

permits are considered or issued. This missing evaluation is a commonsense requirement that we will continue to seek because public health and the health of local communities depends on it.

We appreciate your consideration.

Respectfully submitted,

Cathy Lodge

Cathy "Cat" Lodge

Ex. 6 Personal Privacy (PP)

ENVIRONMENTAL HEALTH PROJECT
DEFENDING PUBLIC HEALTH 2012-2022
environmentalhealthproject.org

March 15, 2022

Shannon Smith
FracTracker Alliance
216 Franklin Street
Suite 400
Johnstown, PA 15901

Dear Ms. Smith:

The Environmental Health Project (EHP) is a nonprofit public health organization that defends public health in the face of shale gas development. We collect, analyze, and present shale gas exposure information that informs frontline communities and empowers them to advocate for ending or mitigating harmful emissions. We work alongside individuals, communities, and health professionals to educate residents on exposure pathways and health impacts, and to promote the adoption of strategies that better protect them from shale gas pollution. We advocate for a health-protective approach to shale gas industry regulation that places health and wellbeing at the center of policy decisions and ensures safety and health for all.

EHP will support *A Case for Assessing Cumulative Air Pollution Impacts from Shale Gas Operations using Community-Based Ambient Air Monitoring and Air Sampling Technology in Robinson and Smith Townships, Washington County, Pennsylvania* by providing data analysis to interpret and help communicate the information collected by the new air quality monitors deployed through this grant. EHP will use the existing AirView analysis app for continuous monitors and help communicate the results of any sampling conducted. EHP's AirView app provides access to real-time analysis of air monitoring data to communities affected by the shale gas industry. For all continuously monitored pollutants, the AirView app collects data from deployed community monitors and provides three main ways to interact with that data as described below.

- The first tool, Monitor Feed Visualization, allows residents to see the output of their monitors in a more interactive format than what is presented in the interfaces provided by the monitor manufacturers. This visualization also displays additional context, including how significantly weather conditions affect population dispersion on an hourly basis and the operating status of a local pollution emitter of concern, where applicable.
- The second tool, Exposure Measures, generates measures of the pollution exposures seen by the connected monitors. These measures are then compared to other EHP monitoring locations and applicable EPA standards to help communities understand whether they should be concerned about pollution exposures in their area.
- The third tool, Impact Analysis, looks to identify from where pollution exposures likely come. This tool uses weather data from the National Oceanic and Atmospheric

Administration and the National Weather Service to make plots that show recorded pollution levels at the monitor location, based on different combinations of wind speed and direction.

EHP's AirView app for data analysis and interpretation will allow communities to determine the extent of extreme episodic exposures to shale gas facilities in their community over time. The tracking of changes is crucial because these exposures are known to cause harm to the respiratory, cardiovascular, and neurological systems, as well as impair the development of infants and children. Evidence of these periodic, high exposures demonstrates how current air regulations fall short of protecting affected communities.

This information is crucial to stakeholder education, which has been EHP's primary area of focus, be it in outreach to health professionals through our quarterly newsletter and training seminars, facilitation of community science projects through our Environmental HealthWatch Model, hosting community meetings for impacted residents, or engaging in dialogues at the local, state, and federal levels to support health-protective policies. EHP has continued to participate in several coalitions focused on air quality, methane emissions, petrochemical development, and cancer. We have been recognized by our collaborators as the voice of data-based public health expertise in all these groups.

We look forward to helping communities in Robinson and Smith Townships better understand their air quality so they can make better-informed decisions about their health and advocate for health-protective policies.

Sincerely,

Jessa Chabeau, MSW
Regional Manager, Appalachia

Project Team Biographies

EPA-OAR-OAQPS-22-01
Enhanced Air Quality Monitoring for Communities
Environmental Protection Agency

Project Title: A Case for Assessing Cumulative Air Pollution Impacts from Shale Gas Operations using Community-Based Ambient Air Monitoring and Air Sampling Technology in Robinson and Smith Townships, Washington County, Pennsylvania

Cathy Lodge is a graduate of the University of Pittsburgh with a Bachelor's degree in Environmental Science. She has always been interested in issues involving the environment. Living in a small rural town in Washington County PA, Cathy has a front row seat to the oil and gas boom. She actively encourages local and state regulatory agencies to consider the scientific data and cumulative health impacts of industry and to take steps to protect the environment and the citizens.

Nathan Deron earned his BS in Political Science and Sociology at the University of Pittsburgh and his MS in Public Policy, Management, and Data Analytics from Carnegie Mellon University. While completing his MS, Nathan worked with the Allegheny County Department of Human Services to investigate novel interventions for frequent users of emergency services in Allegheny County. He also worked with 412 Food Rescue to develop a new model of food recovery to address rural hunger in Greene County, PA.

Lisa Graves Marcucci is Pennsylvania Coordinator, Community Outreach with the Environmental Integrity Project (EIP). Since joining EIP in 2009, her efforts to protect human health from power plant and oil and gas pollution have grown from the community to the regional and national level. Her work includes conducting extensive reviews of permit files for EIP, helping to identify violations, and organizing citizen testimony at numerous public hearings before local, state and national agencies. Lisa has been working with frontline shale gas communities since 2010. She is a life-long resident of Pittsburgh's Monongahela Valley and is a graduate of Duquesne University. In 2004, Lisa was invited to speak before the National Academy of Sciences in October of 2004 in Washington, D.C., advocating for more effective regulation of coal combustion waste disposal.

FRACTRACKER ALLIANCE

Environmental Protection Agency (EPA)
Enhanced Air Quality Monitoring for Communities
FY 2022 Request for Proposals (RFP) EPA-OAR-OAQPS-22-0

Robinson/Smith AirWatch Project: A Case for Assessing Cumulative Air Pollution Impacts from Shale Gas Operations using Community-Based Ambient Air Monitoring and Air Sampling Technology in Robinson and Smith Townships, Washington County, Pennsylvania

Quality Assurance Plan

For installation, operation, and interpretation of data output from monitoring equipment items in this project, the FracTracker Air Monitoring Fellow will consult the EPA Monitoring Toolbox to most closely follow EPA guidelines. The Air Monitoring Fellow will also ensure standard operating procedures for each piece of equipment purchased are being followed.

Below are Quality Assurance statements for the data outputs from each air monitoring equipment item.

The **Airviz Combo tVOC monitors** use a Sensirion SGP30 sensor to produce the tVOC data output. The SGP30 is a digital multi-pixel gas sensor designed for easy integration into air purifier, demand-controlled ventilation, and IoT applications. Sensirion's CMOSens® technology offers a complete sensor system on a single chip featuring a digital I2C interface, a temperature controlled micro hotplate, and two preprocessed indoor air quality signals. As the first metal-oxide gas sensor featuring multiple sensing elements on one chip, the SGP30 provides more detailed information about the air quality. The sensing element features an unmatched robustness against contaminating gases present in real-world applications enabling a unique long-term stability and low drift. Air quality signals TVOC and CO2eq are calculated from Ethanol and H2 measurements using internal conversion and baseline compensation algorithms. SGP30 uses a dynamic baseline compensation algorithm and on-chip calibration parameters to provide two complementary air quality signals. Based on the sensor signals a total VOC signal (TVOC) and a CO2 equivalent signal (CO2eq) are calculated. Airviz Inc has written commands in accordance with Sensirion's recommendations to send an "sgp30_iaq_init" command which starts the air quality measurement. After the "sgp30_iaq_init" command, a "sgp30_measure_iaq" command is sent in regular intervals of 1s to ensure proper operation of the dynamic baseline compensation algorithm.
Reference, Datasheet SGP30 Sensirion Gas Platform:
https://drive.google.com/drive/folders/1MnLQhUM1nVsk4CoyklnNapSmLV15saU_

AirView has a number of features that the Fellow will make use of in order to ensure that the data that is publicly available to community members has a baseline level of comparability, accuracy and completeness. AirView conducts automated quality control by removing readings that are outside the specified operating range of the sensor in use. For PurpleAir monitors, AirView applies a quality control algorithm that removes readings when the two PM sensors appear to disagree based on a two-sample t-test. AirView provides the option to apply the PurpleAir correction equation developed by the USEPA Office of Research and Development. AirView provides information about atmospheric stability to help determine if pollutant levels are being exacerbated by weather conditions. The atmospheric stability

calculation includes humidity, which could be extracted and presented as well for this visual inspection for the AirViz and PurpleAir monitors.

The **GIS-320 Optical Gas Imaging (OGI) Camera** is built around a FLIR cooled Focal Plane Array (FPA) cooled infrared detector with a spectral range of 3.2-3.4 µm and equipped with digital visible camera with data that can then be analyzed in ThermoLab software. GPS coordinates are embedded directly into the recorded images allowing for the display of the map in ThermoLab. This camera allows the user to measure methane, benzene, ethylene, toluene, xylene, heptane, pentane, octane, and over 200+ VOCs within the sensitivity needed to comply with the US EPA proposed rule on pollution from the oil and natural gas industry (November, 2021, Page 2 here) which highlights the need for *"innovative methane detection technologies and other cutting-edge solutions"*. Additionally, this camera will allow for the detection of small leaks, which tend to be prevalent on well pads and compressor stations, by way of its noise reduction filter and FLIR-patented High Sensitivity Mode (HSM). The GIS-320 is ideal for detecting VOCs in remote areas and/or where infrastructure spread out over a large area which is exactly the types of up and midstream infrastructure that has been concentrated in Washington County, Pennsylvania.

Enthalpy Analytical will be the lab the project utilizes for all the EPA Method 325 sorbent tube ambient air monitoring for HAPs. We will be using the Durham, NC lab facility which is one of the labs currently used by the PA DEP. Our main contact will be Matt Cavanaugh, Project Manager at the Durham, NC laboratory location. He has over five years of environmental laboratory experience with Enthalpy and over the last three years has mainly focused on the M325B Fenceline Monitoring Programs. Their credentials are included below:

- Accreditations, see Durham, NC location: https://enthalpy.com/accreditations/
- Ambient Air Monitoring: https://enthalpy.com/air/ambient-air-monitoring/
- EPA 325A and 325B monitoring: https://enthalpy.com/blog/simplify-and-streamline-fenceline-reporting/
- Stationary Source Emissions: https://enthalpy.com/air/stationary-source-emissions/

The **Sensit SPod auto summa** will collect samples once tVOC readings exceed a set threshold. This threshold will be determined based on measurements at the location of deployment, such that it is triggered during spikes in tVOC levels relative to the mean concentrations in that area. The following steps will be used for SPod data analysis:

• SPod data visual inspection and thresholding to protect against "off scale" conditions where events are missed due to having the threshold set too high.
• SPod data visual inspection to investigate rapid relative humidity swings to ensure any measured events are not due to rapid climate changes which can affect the PID sensors.
• SPod data visual inspection to identify anomalous data drop-out conditions.
• Use of concentration wind rose plots to understand source direction.
• Review of 5-minute averaged PID data summary files for each SPod performed daily.
• Review of all daily data (one full 24-hour period from 00:00 to 24:00) including met sensors from each SPod, performed at least once per week.

FRACTRACKER ALLIANCE

EPA-OAR-OAQPS-22-01
Enhanced Air Quality Monitoring for Communities
Environmental Protection Agency

Project Title: Robinson/Smith AirWatch Project: A Case for Assessing Cumulative Air Pollution Impacts from Shale Gas Operations using Community-Based Ambient Air Monitoring and Air Sampling Technology in Robinson and Smith Townships, Washington County, Pennsylvania

Areas Affected by Project

The following communities and surrounding areas will be affected by this project:

Robinson Township and Smith Township, Washington County PA - with a focus on the areas of Bulger, PA 15019 and Burgettstown, PA 15021

FRACTRACKER ALLIANCE

EPA-OAR-OAQPS-22-01
Enhanced Air Quality Monitoring for Communities
Environmental Protection Agency

Project Title: Robinson/Smith AirWatch Project: A Case for Assessing Cumulative Air Pollution Impacts from Shale Gas Operations using Community-Based Ambient Air Monitoring and Air Sampling Technology in Robinson and Smith Townships, Washington County, Pennsylvania

Additional Congressional Districts

The following congressional districts will be affected by this project:

PA-014
Bulger, PA 15019

PA-017
Burgettstown, PA 15021

Manifest for Grant Application # GRANT13580552

Grant Application XML file (total 1):

1. GrantApplication.xml. (size 28968 bytes)

Forms Included in Zip File(total 6):

1. Form ProjectNarrativeAttachments_1_2-V1.2.pdf (size 16039 bytes)

2. Form SF424_3_0-V3.0.pdf (size 24245 bytes)

3. Form SF424A-V1.0.pdf (size 22814 bytes)

4. Form EPA4700_4_3_0-V3.0.pdf (size 22618 bytes)

5. Form OtherNarrativeAttachments_1_2-V1.2.pdf (size 15914 bytes)

6. Form EPA_KeyContacts_2_0-V2.0.pdf (size 37315 bytes)

Attachments Included in Zip File (total 13):

1. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1241-Letter of Support - CREATE Lab.pdf application/pdf (size 105159 bytes)

2. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1242-Letter of Support - Environmental Health Project.pdf application/pdf (size 177849 bytes)

3. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1239-Resume - Ted Auch.pdf application/pdf (size 151012 bytes)

4. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1240-EIP Letter_US EPA Grant Application_FINAL.pdf application/pdf (size 174062 bytes)

5. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1238-Resume - Shannon Smith.pdf application/pdf (size 148452 bytes)

6. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1237-Resume - Ana Tsuhlares Hoffman.pdf application/pdf (size 79335 bytes)

7. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1245-Quality Assurance Statement Washington County EPA Proposal.pdf application/pdf (size 223222 bytes)

8. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1243-Letter of Support - Robinson Smith Air Watch.pdf application/pdf (size 244776 bytes)

9. ProjectNarrativeAttachments_1_2 ProjectNarrativeAttachments_1_2-Attachments-1246-Final Pennsylvania Monitoring Grant Application.pdf application/pdf (size 4048906 bytes)

10. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1244-Project Team Biographies.pdf application/pdf (size 144079 bytes)

11. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1236-Proof of nonprofit status - FracTracker Alliance IRS approval letter.pdf application/pdf

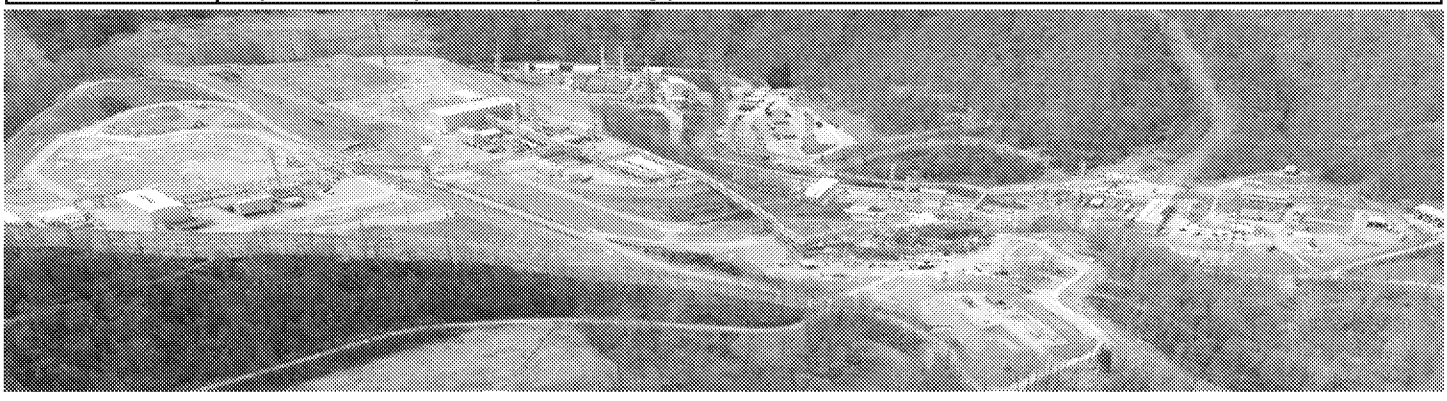
(size 56950 bytes)

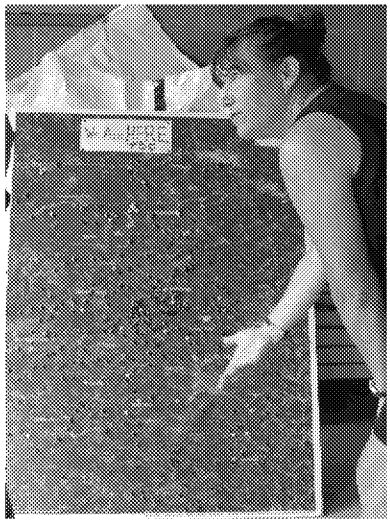
12. SF424_3_0 SF424_3_0-1235-Additional Congressional Districts.pdf application/pdf
(size 202334 bytes)

13. SF424_3_0 SF424_3_0-1234-Areas Affected by Project attachment.pdf application/pdf
(size 205269 bytes)

Environmental Protection Agency (EPA)
Enhanced Air Quality Monitoring for Communities
FY 2022 Request for Proposals (RFP) EPA-OAR-OAQPS-22-0

Project Title	**Robinson/Smith AirWatch Project:** A Case for Assessing Cumulative Air Pollution Impacts from Shale Gas Operations using Community-Based Ambient Air Monitoring and Air Sampling Technology in Robinson and Smith Townships, Washington County, Pennsylvania
Applicant Information	FracTracker Alliance 216 Franklin St Ste 400 Johnstown, PA 15901-1911 USA Shannon Smith, 814-449-0659, smith@fractracker.org DUNS No: 068581459
Set Aside	No set-aside
Eligible Entity	FracTracker Alliance is a 501(c)3 nonprofit organization that maps, analyzes, and communicates the risks of oil, gas, and petrochemical development to advance just energy alternatives that protect public health, natural resources, and the climate. FracTracker provides technical assistance to partner organizations across the country to reduce air and water pollution, lessen environmental degradation, and promote environmental justice.
Project Partners	Carnegie Mellon University CREATE Lab, Ana Hoffman; Environmental Health Project (EHP), Jessa Chabeau; Environmental Integrity Project (EIP), Lisa Graves Marcucci; Robinson/Smith AirWatch, Cathy Lodge
Project Location	Robinson Township and Smith Township, Washington County PA - with a focus on the areas of Bulger, PA 15019 and Burgettstown, PA 15021
Air Pollutant Scope	Particulate matter (PM2.5), ozone and its precursors, like nitrogen oxides, and hazardous air pollutants (HAPs) including benzene, ethylbenzene, toluene, xylene, and hydrogen sulfide.
Budget Summary	**Funding Requested**: $430,001 — **Total Project Cost**: $430,001
Project Period	November 1, 2022 - May 1, 2024
Short Project Description	Pennsylvania's natural gas output has grown forty-fold since 2010, faster than any state - and without any consideration for the cumulative impacts. The rapid expansion of those operations has caused serious disruptions for local communities, particularly rural communities in Robinson and Smith Townships, Washington County. The project will deploy ambient air monitoring equipment to better assess emissions from the increased shale gas industrial buildout and use that data to educate local community members, elected officials and regulators on the need for a cumulative impact analysis requirement as part of all permitting procedures.





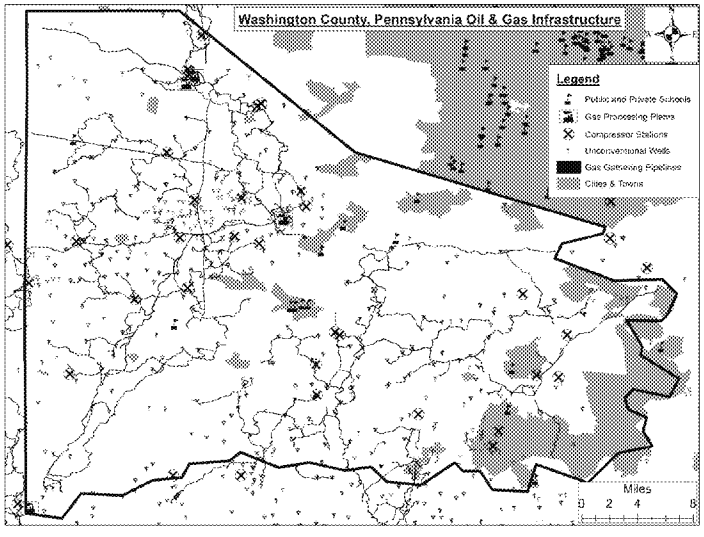
Section 1. Project Summary & Approach (30 Points) - A.Overall Project (20 points)

"We are here, too" - Communities Call For More Protections

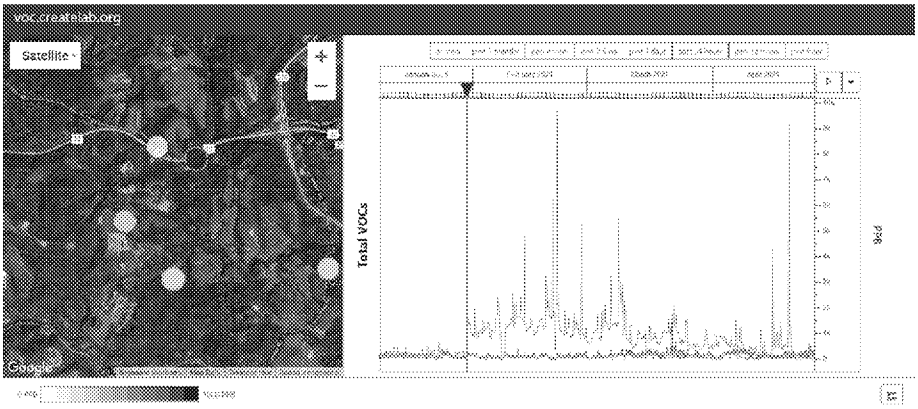
In the past decade, Pennsylvania has become #2 in the nation for natural gas extraction and #3 for natural gas production. The rapid expansion of the shale gas industry over the past 10 years has moved faster than the speed of government regulation and oversight. Communities in Washington County, Pennsylvania have watched the web of infrastructure around them grow exponentially with homes, farms, and schools stuck in the cross-paths. These facilities release air pollutants that contribute to smog, lung and heart diseases, and cancer, as well as climate pollution.

The project's geographic area has a larger than average population 65 or older and is medically underserved according to EPA's EJScreen tool. Older individuals that have been exposed to air pollution are particularly susceptible to COVID-19 infection and respiratory disease, and are more likely to suffer adverse outcomes, including death, according to a study published in 2020 in *Cardiovascular Research*.

Since 2012, the PA DEP has continued to issue permits for well pads, pipelines, pigging operations, compressor stations and processing plants without common sense public health and environmental safeguards. As these industrial projects are rubber-stamped and the pollution burden increases, rural residents attest they are the only stakeholders who have been documenting the scale of the buildout. Residents have observed and mapped 100+ shale gas operations in Robinson/Smith Townships, increasing worry about the cumulative impacts to the health of their families and community.



The Environmental Integrity Project (EIP) has worked directly with community residents supporting their efforts to obtain legal protections they are entitled to. Partnerships have formed with the Environmental Health Project (EHP) and the Carnegie Mellon University CREATE Lab to support a community-led air monitoring network consisting of 8 sites for Airviz tVOC and PurpleAir PM2.5 monitors with publicly available data on VOC.createlab.org. This coalition has engaged FracTracker to expand this network of low-cost air quality monitors and leverage FracTracker's unique ability to pair maps of infrastructure with aerial imagery to demonstrate the true scale of the infrastructure surrounding homes, farms, and schools in Robinson/Smith Townships. This data will give a more accurate picture of the impacts of the unrestrained shale gas buildout in these communities. This proposal reflects the community's primary request for better emissions monitoring from the expanding shale gas infrastructure. The project would expand the existing ambient air monitoring network and add monitoring of benzene and other HAPs emitted from these facilities. The project will make a case for increased and continuous emissions monitors (CEMs).



Expanding Current Community Air Monitoring

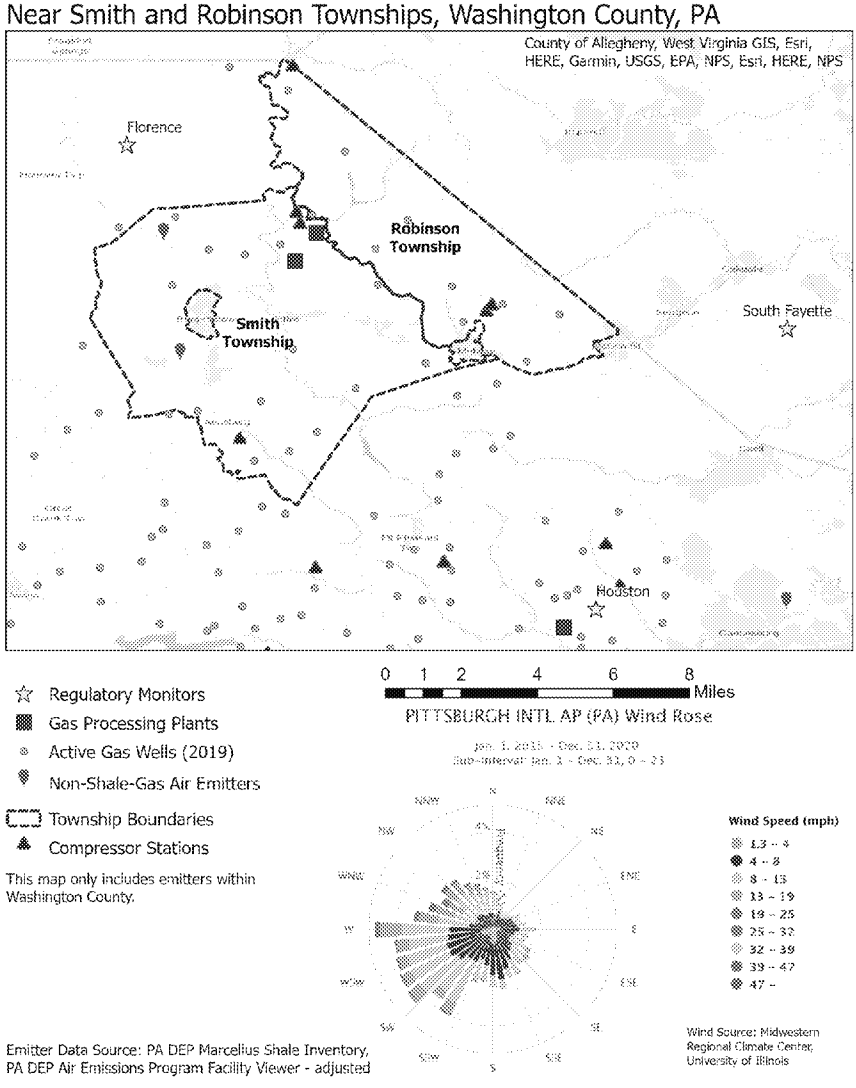
This project would install additional air monitors near compressor stations and gas processing plants to measure HAPs. Too few government-operated monitors exist in Washington County and they are

placed in areas that do not accurately capture the toxic emissions impacting these communities, and the monitoring for HAPs is too infrequent. Currently, air monitors are located in Houston, PA, South Fayette, and Florence and collectively they measure ozone, SO2 and PM2.5 speciation as well as VOCs once every six days. Facilities have used the Florence monitor as part of their required pollution modeling in their applications to PA DEP. However, the plants of most concern, that are part of the massive gas infrastructure buildout in Robinson/Smith Township, are constructed downwind of the Florence monitor and too far north and upwind of the Houston and South Fayette monitors to properly detect pollution from these facilities.

This project will build on existing monitoring efforts and create tools to empower communities:

- Create the ***Robinson/Smith AirWatch***, a community web platform to track pollution, document health impacts, and track PA DEP's response.
- Create community tools like webinars, monitoring summaries, and detailed fact sheets about air emissions and pollution events to be shared with residents, project team members, local government officials, PA DEP, and EPA.
- Organize resident meetings with PA DEP to ensure local voices are heard and considered in decision making.
- Enhance current air monitoring project by increasing the number of Airviz tVOC monitors from 8 to 12, and analyze the data using the EHP AirView App ("AirView").
- Add EPA Method 325 sorbent tubes at each monitoring site to sample for several speciated HAPs, and additionally use Sensit SPod summa canister grab samples to speciate short term air toxic exposures, led by local residents.
- Develop visuals that pair infrastructure maps with aerial imagery that demonstrates the true scale of the infrastructure weaving between homes, farms, and schools in Robinson/Smith Townships. These will be included in data summaries and educational webinars to give geographic context for the data.
- Use FLIR GIS-320 Optical Gas Imaging System on a DJI Matrice 200 Series Drone to assess a 3-dimensional distribution of methane and 200+ hydrocarbons, VOCs and HAPs in Robinson/Smith Townships.

Regulatory Monitors, Major Emitters, and Natural Gas Infrastructure Near Smith and Robinson Townships, Washington County, PA



- Summarize data to identify recommended areas for CEMs in order to properly evaluate cumulative impacts.

B. Project Significance (10 points)

<u>Industrial Buildout Without Cumulative Impact Analysis and Continuous Monitoring</u>

Pennsylvania's natural gas output has grown forty-fold since 2010, and production for the entire Appalachian region (Pennsylvania included) is predicted to continue its increase through the middle of this century. **At the same time gas permitting was skyrocketing, the Pennsylvania Department of Environmental Protection (PA DEP) lost 15 percent of its staff – or 416 positions between 2008 and 2018. These significant and continuous staff reductions mean less oversight of these operations, potentially increasing risks to communities.** The rapid expansion of those operations has caused serious disruptions for local communities, particularly rural communities in Washington County: Robinson/Smith Townships. Once home to generational farmland, communities have been overwhelmed by the shale gas operations including well pads, compressor stations, processing plants, pigging operations and pipelines – all emitting pollution without analysis of the cumulative impacts to the residents'

health in these once mostly agricultural areas. The changes have been profound.
By comparing the wind rose and the noted sites of the gas infrastructure buildout included on the map above, it becomes clear, as previously explained, the existing locations of the EPA monitors are not appropriately placed nor capturing the full extent of emissions. PADOH and ATSDR have also documented the need for improved monitoring, noting, "Given the limitations in monitor placement and the concern about representativeness of these data, PADOH and ATSDR believe additional community air monitoring activities, particularly with monitoring locations that are more regularly downwind of the target emissions sources, would further advance our understanding of community public health impacts from exposures to natural gas industry emissions." It turns out residents' concerns about cumulative impacts are being echoed by others including the PA Attorney General's 43rd Grand Jury report which recommended "[a]dding up all the sources of air pollution in a given area to accurately assess air quality."

Section 2. Community Involvement (25 or 35 points) A. Community Partnerships (15 points)

Cathy "Cat" Lodge has been a community advocate tirelessly working on behalf of her town in Washington County. Her community has been heavily drilled for shale gas over the past 15 years. Cat's farming community has watched the silos be replaced with condensate tanks and barns replaced with compressor stations. Once idyllic fences lining narrow country roads are clogged with diesel rigs carrying hazardous liquids and gasses and Certarus trucks bringing mobile compressor stations and flares through the sleepy neighborhoods not designed for this kind of traffic. The once agricultural school districts of Fort Cherry (Robinson Township) and Burgettstown (Smith Township) known for celebrating *"Take Your Tractor To School Day"* and *"Donkey Basketball"* are closely surrounded by shale gas operations. During the school year, children are exposed to multiple shale gas operations in very close proximity to the schools. **In both cases, school district properties share a property line with active gas wells.**

"We are HERE, too" is the title of Cat's handmade tracking map above. Color-coded push pins are added to an enlarged Google Earth image of Robinson and Smith Township communities. Cat and her team used the map to track the ever-expanding shale gas infrastructure that has been authorized in these small rural towns. The map accompanied Cat and another local resident when they attended an in-person meeting with the PA DEP Air Quality team that was secured by EIP. During the meeting, staff members inquired about the map. When Cat noted the map depicted most - not all - of the permits issued by the Department for operations in her area, PA DEP staff appeared to be shocked. The reaction confirmed for Cat that DEP was not tracking the cumulative impacts of the permits it issued. Cat and her team became more determined than ever and the seeds of a community-based monitoring project were planted. Cat was invited to join AGU Thriving Earth Exchange project, with scientific lead Dr. Albert Presto hoping to evaluate cumulative impacts from shale gas development, but the lack of sufficient regulatory monitoring made it too difficult. Needing more monitors, Cat worked with EIP, EHP and CREATE Lab to begin low-cost monitoring. Team members assisted Cat with the analysis of emissions data to better understand potential public health impacts. Those efforts included ambient air monitors such as Speck PM2.5 monitors, PurpleAir PM2.5, Airviz tVOC monitors and aldehyde badges. Those results were somewhat successful in tracking trends and episodic events, however, monitoring for speciated pollutants was still missing.

Although these collaborative efforts have made important progress, they have also demonstrated the need for more stationary monitors, sampling for toxic pollutants like benzene, and more frequent monitoring to capture startup, shutdown, and malfunction events (SSMs). The additional monitoring conducted under this proposal would evaluate the need for a comprehensive cumulative impact analysis of air pollution before new permits are granted so communities are better protected.

Partners in this project:
Carnegie Mellon University CREATE Lab is a community-focused technology empowerment and partnership organization. Since 2014, they have collaborated on ways residents can combine voices to better document air pollution

and to speak with amplified voices. For this project, Ana Hoffman and the CREATE Lab team will develop and maintain multiple, publicly accessible air pollution data tracking websites, including Robinson/Smith AirWatch, voc.createlab.org, and environmentaldata.org, which aggregates air monitoring data from government and community-owned networks. CREATE Lab will also support creation of data summary reports with tailored analyses and visualizations to add to summaries, such as forward dispersion and back trajectory modeling.

The Environmental Health Project (EHP) is a nonprofit public health organization that defends public health in the face of shale gas development. Since 2012, they have collected, analyzed, and presented shale gas exposure information that informs frontline communities and empowers them to advocate for ending or mitigating harmful emissions. EHP advocates for a health-protective approach to shale gas industry regulation that places health and wellbeing at the center of policy decisions and ensures safety and health for all. For this project, Nathan Deron and the EHP team will provide data analysis through AirView to interpret and help communicate information collected by the air quality monitors deployed.

The Environmental Integrity Project (EIP) is a 501 (c)(3) nonpartisan, nonprofit watchdog organization that advocates for effective enforcement of environmental laws and is comprised of former EPA enforcement attorneys, public interest lawyers, analysts, investigators, and community organizers. EIP has three goals: to illustrate through objective facts and figures how the failure to enforce or implement environmental laws increases pollution and harms public health; to hold federal and state agencies, as well as individual corporations, accountable for failing to enforce or comply with environmental laws; and to help local communities obtain the protections of environmental laws. As part of this project, EIP will provide: assistance for community members with EPA Method 325 passive sampling at 12 locations colocated with Airviz tVOC monitors. They will provide fact sheets/data summaries of monitoring results to community members, and participate in quarterly webinars to share information with community members. They will facilitate communications between community members and the PA DEP air quality staff. Upon completion of the 12-month Method 325 sampling, EIP will summarize data collected in this case study to demonstrate recommended areas for continuous emission monitoring in order to properly evaluate cumulative impacts.

B. Community Engagement (10 points)

This project is led by residents who, out of necessity, have become community scientists focused on ambient air quality monitoring. These residents have expressed a need for a centralized, editable platform to track pollution events like flaring and associated sights and smells associated with complaints submitted to PA DEP. Cat Lodge will lead the effort to collaborate with interested neighbors to create content for a new website, ***Robinson/Smith AirWatch***. This tool will amplify resident's voices by systematizing their documentation of pollution events, health diaries, and complaints submitted to regulatory agencies, as well as agency responses.

The project will provide comprehensive data summaries and conduct quarterly webinars with the residents. These webinars will be a zoom-accessible space for residents participating in the monitoring and sampling effort. Webinars will allow these residents to engage with air quality policy, advocacy, and data experts from the project's partner organizations, and jointly assess the project's performance, accessibility and usefulness of findings, as well as goals for future collaboration to yield policy change and increased health protections. These data summaries will combine TO-15 sample analysis, low-cost Airviz tVOC data analysis, and detections from readings taken with the FLIR GIS-320 Optical Gas Imaging (OGI) System. This data has the potential to confirm residents' concerns and indicate the need for cumulative impact assessments and continuous stationary monitoring.

C. Community-Based Organization Set-Aside (10 points) N/A

Section 3. Environmental Justice and Underserved Communities (10 Points)

While the world stayed home during the pandemic, so too did the PA DEP inspectors. Citizens were told the regular on-site visits to the problematic sites in Robinson/Smith Township, that had previously been part of the inspectors' schedules, had been halted during the pandemic. Inspectors were only dispatched during significant events, as determined by the Department. While there was a prolonged pause in the routine site inspections, industry kept a steady stream of requesting and receiving permits for shale gas operations, including in these two heavily impacted communities.

Residents were not able to attend public meetings, hearings or conduct in-person file reviews. During COVID, townships limited the number of residents allowed into meetings when shale gas development permits were being considered, further limiting the public's access to these important discussions.
Opportunities for engagement with the PA DEP were dramatically affected by the pandemic, closing doors that were routinely open were now not available and documents were not always provided online. As a result, marginalized, concerned residents had to step up their vigilance in maintaining access to public participation as residents continued local efforts to monitor the pollution in the air.
COVID presented a host of problems on multiple fronts, however, the pandemic underscored the technology divide among families in environmental justice areas. When the township's doors closed due to COVID, so too did the flow of information to locals that were used to attending in-person meetings rather than logging onto a Zoom meeting. Residents in rural areas like Robinson/Smith Township do not have high-speed internet access, limiting their ability to participate in the few public hearings that were offered by the PA DEP. Senior citizens, in particular, found it difficult to participate due to internet connections, lack of computer/technology access and/or lack of familiarity with video meeting platforms. The pandemic underscored how some of the most vulnerable residents were being left behind as a result of the technology disconnect. While many EJ communities continue to experience challenges to access full public participation opportunities, the PA DEP is taking an important step forward in developing a new policy that addresses some of the current challenges. Recently the PA DEP announced public hearings as they consider the adoption of new policies aimed at ensuring more public access to community engagement and other regulatory opportunities. Cat, her team and our partner organizations will be participating in those hearings and providing comments to the PA DEP.

Impacts from flaring:

A chronic problem facing residents in Robinson/Smith Township is the issue of flaring from a variety of shale gas operations: well pads, pigging and processing plants in particular. COVID made access to the PA DEP records limited while the flaring continued on a regular basis. Citizens living near flaring facilities were left to worry about what they were being exposed to as a result of the near constant episodic flaring. It appears citizens have reason for concern. According a Washington State University report on a study published in the *Journal of Public Economics*, " [in the North Dakota] zip codes that were exposed to more than half of all flared natural gas extracted less than 20% of all resource wealth during the sample time period, and the zip codes exposed to a disproportionate amount of flaring tend to be economically-disadvantaged and communities of color. Our estimates indicate that the health costs constitute a material portion of the external cost of flaring, and therefore ought to be considered in global initiatives to reduce flaring."

Pennsylvania has a higher incidence of natural gas extraction and production than North Dakota. So the facts cited in the article above highlight the Robinson/Smith community concerns about impacts as a result of being forced to live near the rapidly expanding - and rarely monitored - shale gas operations in western Pennsylvania. The communities affected by the heavy buildout of the shale gas operations in Robinson/Smith Townships include some of the most vulnerable populations: the very young, the elderly and pregnant women. According to an *Inside Climate News* story, "Babies born near hydraulic fracturing sites are 25 percent more likely to have a low birth weight than those born only a few kilometers away, a new study of more than 1 million births in Pennsylvania's Marcellus Shale region concludes. The study, published in the journal Science Advances, provides some of the most compelling data to date linking the process of hydraulic fracturing to negative health effects. It found that babies born within 3 kilometers of fracking sites were less healthy than those born farther away, and that babies born within 1 kilometer saw the largest effects." And as if pregnant women did not have enough to worry about, COVID added to those worries. The populations most at risk as a result of the pandemic included the very populations most at risk living near fracking and flaring operations.

The geographic area covered by this proposal has a larger than average population 65 or older and is medically underserved according to EPA's EJScreen tool. Older individuals that have been exposed to air pollution are particularly susceptible to COVID-19 infection and respiratory disease, and are more likely to suffer adverse outcomes, including death, according to a study published in 2020 in *Cardiovascular Research*.

Washington County, Pennsylvania Table

High Blood Pressure	29.8
Cancer	6.7†
High Cholesterol	27.4
Kidney Disease	2.4
COPD	6.4
Heart Disease	5.2
Diabetes	8.1
Depression	21.4
Obesity	34.8
Stroke	2.8
All Teeth Loss	14.2
US EPA EJ Screen Metrics	
Proximity to Substance RMP Sites	**
Air Toxics Cancer Risk	West 80-90%/East 95-100%
Lead Paint	**
Food Deserts	7
Heart Disease	**
Low Life Expectancy	**
Low Income	**
Unemployment	**
Under Age 5	**
Over Age 64	***
Unconventional Oil & Gas Infrastructure	
Producing Unconventional Wells	2,142 (2nd Ranked PA County; 13% of State's Unconventional Wells)
Natural Gas Compressor Stations	28 (4th Highest Statewide by County)
Gas Processing Plants	4 (One of only 2 PA Counties with > 1 Plant)

† Upper 70% Percentile Nationally

As for the EJ Screen:

1. * = it has singular census tracts in the Upper 80% or 90% for that indicator
2. ** = it has multiple census tracts in the Upper 80% or 90% or simply multiple census tracts in the Upper 90%
3. *** = primarily in the Upper 80% or 90% for Unemployment and Over Age 64

The current definition, terminology, mapping, and metrics for measuring EJ severity do not necessarily translate into the realm of this country's latest energy boom in the form of hydraulic fracturing which is playing out across rural sections of Appalachia, the Upper Great Plains, Oklahoma, and Texas. So far, the young science of Environmental Justice has largely and correctly focused on population centers and point source pollution while nonpoint impacts spread across large areas remain elusive especially with respect to the myriad of infrastructure and networks required for shale gas development. This infrastructure includes upstream well pads and gas gathering pipelines, midstream compressor stations, transmission pipelines, and gas processing plants, as well as downstream refining and export complexes. Air pollution and EJ impacts in rural areas are dissimilar from industrial corridors or point sources of pollution. In aggregate, they are no less important and potentially impactful, and need case studies that both validate and quantify those impacts. Such case studies would serve as a model for rural and fossil fuel rich counties. Studies like this project would help increase the level of understanding for EJ issues in rural areas that are subjected to resource extraction bringing it closer to the understanding we have for the frequency, intensity, and duration of EJ impacts known to affect urban communities along the fence lines of manufacturing and processing corridors.

Section 4. Environmental Results - Outcomes, Outputs and Performance Measures (20 Points)

A. Expected Project Outputs and Outcomes (10 points)

The main outputs of this project will be ongoing air quality assessment for northern Washington County, PA, presented quarterly to the community. The outcomes include increased understanding of health impacts of significant shale gas development distributed across the region. See Table 1 for a summary of expected outputs and outcomes. By providing the marginalized communities of Burgettstown and Bulger in Smith and Robinson Townships, with important air quality information that will result from this project, they will be able to better address the air pollution and other environmental hazards that have overburdened their communities for decades and will help fulfill the promise of the EPA Strategic Plan Objective 4.1 to "Improve Air Quality and Reduce Localized Pollution and Health Impacts."

Table 1: Summary of Expected Outputs and Outcomes, continued below

Activities	Outputs	Outcomes
▪ Use the EPA Monitoring toolbox to install monitors as close to those recommendations as possible ▪ Conduct bi-weekly benzene, ethylbenzene, toluene, xylene sorbent tube sampling using method 325 ▪ Utilize SPod to collect summa canisters and send to EPA-certified lab for TO-15 analysis	▪ 1 year of Method 325 passive sampling for BTEX ▪ 15 summa canister reports ▪ Geolocated OGI HAPs data that can then be analyzed in ThermoLab software ▪ 4 new Airviz tVOC monitors purchased ▪ Quarterly data summaries	▪ Greater ability throughout the community to engage in public comment regarding local air pollution ▪ Greater data literacy throughout the community monitoring air pollution

▪ Use the GIS-320 Optical Gas Imaging (OGI) Camera to capture HAP data ▪ Provide training to community members on how to interpret data ▪ Provide all produced data online on the **Robinson/Smith AirWatch** website	▪ Accumulation of resident reports in the Robinson/Smith AirWatch website	▪ Greater balance of information between Industry and communities impacted by shale gas development

B. Performance Measures and Plan (5 points)

FracTracker's performance measures and plan are in accordance with the EPA policy requirements specified in the National Term and Condition for Subawards. Each of the Subrecipients will be required to submit a detailed scope of work describing their role, responsibilities, and deliverables. The Project Manager will be responsible for creating a project timeline with milestones and planned expenditures. Each of the Subrecipients should agree to the overall project timeline and milestones before project implementation begins. FracTracker will share a performance measurement tool with all Key Personnel, to be updated with metrics and a written progress report on a monthly basis. The Project Manager will review metrics on a monthly basis and compare with milestones listed within the project timeline. The Project Manager will meet with the Key Personnel to address any discrepancies between the scope of work and performance. Suggestions for improvement as the project progresses will be incorporated into monthly reports for continuous improvement of reporting and results. Monthly reports will be shared with the Authorized Representative (FracTracker Executive Director), for review and approval.

The Authorized Representative will approve all expenditures and purchases on a monthly basis, based on performance as described in the project timeline. Each of the Key Personnel will submit monthly timesheets to be approved by the Authorized Representative in order for the Administrative Contact to disperse salaries, wages, and fringe benefits.

C. Timeline and Milestones (5 points)

To document progress during the air monitoring project, FracTracker will provide quarterly reports to EPA on project progress. These will include, planned project activities and technical progress in the most recently completed quarter, and planned activities for next quarter; summary of expenditures on project activities in the most recently completed quarter, and planned expenditures for next quarter; technical problems or issues and their resolution.

FracTracker will also provide a final report to EPA within 120 calendar days of completion of the project. This report will include a summary of project activities and expenditures and a discussion of problems, successes, and lessons learned from the project. Final report will include a detailed projection of emissions benefits that will be achieved by the project recommendations. In addition, the final report shall discuss the problems, successes, and lessons learned from the project or activity that could help overcome structural, organizational or technical obstacles to implementing a similar air monitoring project elsewhere.

Date	Activity
11/1/2022	Begin outreach to introduce monitoring project and find new monitor hosts
12/1/2022 - 2/1/2023	Deploy new monitors, train field workers on deployment and retrieval for Method 325 sampling
2/1/2023 - 2/1/2024	Conduct bi-weekly passive HAP sampling for four pollutants at 12 locations; deploy SPod to collect a total of 24 summa canister samples for TO-15 analysis
2/14/2023	Launch Robinson/Smith Air Watch website
3/1/2023	Training session on how to interpret data found on Air Watch website
5/1/2023	First data summary and webinar to share results with community
8/1/2023	Second data summary and webinar to share results with community
11/1/2023	Third data summary and webinar to share results with community

2/1/2024	Final data summary and webinar to share results with community
2/1/2024 - 4/1/2024	Develop overall takeaways, recommendations, and next steps
4/30/2024	Share overall lessons from the project and next steps with community

Section 5. Quality Assurance Statement (5 points)

FracTracker understands the need to carry out work under this potential agreement within a quality assurance system commensurate with the degree of confidence needed for the environmentally related data operations, and intends to carry out such quality assurance in accordance with the plan described in the Quality Assurance attachment to this application.

Section 6. Programmatic Capability and Past Performance (15 points)

Over the past three years, FracTracker successfully managed and completed the grants listed below.

- Along with project partner EHP, FracTracker was awarded $100,000 from the Colcom Foundation in support of the project "Preventing Oil and Gas Impacts: Citizen Science and Technical Assistance for SWPA Communities." Over the period of 2018-2019, FracTracker and EHP installed air monitoring systems in Allegheny County, PA, and mapped Allegheny County air pollution, focusing on townships with increased fracking activity. Using SPECK indoor and Purple Air outdoor monitors, air quality in 8 Allegheny County municipalities were tracked.
- The Heinz Endowments awarded FracTracker a $550,000 grant over the period of 1/1/20 - 12/31/21 to fund two projects: 1) Expand assistance to communities and organizations in the greater Ohio Valley and Gulf Coast regions; (2) Increase service provision of maps and data analysis in support of organizations and academic efforts. As part of this agreement, FracTracker worked with EHP on a community air monitoring initiative. Results were shared with community members, PA State Representatives and the Allegheny Health Department.
- The 11th Hour Project awarded a $175,000 grant to FracTracker over the period of 9/1/20 - 8/31/21 to increase public understanding of health risks presented by oil and gas development. FracTracker performed essential analyses on important health, environmental, and economic questions relating to the hydrocarbon industry and its projects and activities.
- The Community Foundation for the Alleghenies funded FracTracker a $50,000 grant over the period of 5/1/19 - 12/31/20 in support of the project "Appalachia Regional Power Mapping of Oil, Gas, and Petrochemical Infrastructure"

In the past three years, FracTracker has successfully completed projects under assistance agreements (in the form of grants) from 39 other non-federal sources. Of the grants listed above, each of the funders renewed their assistance agreements—a testament to FracTracker's efficacy in carrying out projects as planned through careful monitoring and project management.

In each case, FracTracker consistently met its interim and final reporting requirements in a timely manner and according to the requirements of each funder. Most of the assistance agreements have required performance measurements, outcomes and outputs, financial reports, and a narrative portion describing achievements and lessons learned.

C. Staff Expertise (5 possible points)

FracTracker Alliance

Dr. Ted Auch, Great Lakes Program Coordinator, will be the Project Manager for this project (See attached resume). Dr. Auch earned his PhD from the University of Vermont (UVM) in 2010. During his nine years with FracTracker, Dr. Auch has contributed hundreds of maps and articles as well as peer-reviewed papers, providing the public with data essential to achieving environmental health. He has managed multiple collaborative projects on topics related to the impacts of oil and gas development on public health. Shannon Smith, Executive Director, received her bachelor of arts degree from Reed College and has worked in nonprofit upper management for eleven years, focusing on grant administration, project management, and communications. She has successfully managed over 40 grants during her time with FracTracker. The Air Monitoring Intern will be hired by FracTracker during the project period based on required expertise.

PARTNER ORGANIZATION

Ana Hoffman, Director of Air Quality Engagement at Carnegie Mellon University CREATE Lab, has a BA in Geography and is a certified GIS analyst from DePaul University. She is an intuitive Geographer with extensive experience for the last 8 years engaging with various stakeholders using data-framed storytelling to support environmental advocacy.

Jessa Chabeau, Regional Manager (Appalachia) at the Environmental Health Project, received her BA in sociology from Pennsylvania State University and her MSW from the University of Pittsburgh. Jessa has worked in the public health nonprofit sector for over 9 years focusing on grant administration, project management, and community engagement.

Nathan Deron, Environmental Data Scientist at the Environmental Health Project, received his BS in Political Science and Sociology at the University of Pittsburgh and his MS in Public Policy, Management, and Data Analytics from Carnegie Mellon University. Nathan has worked in the nonprofit sector for 6 years and has extensive experience in conducting data reviews and analyses and performing atmospheric and dispersion modeling.

Cathy Lodge is a graduate of the University of Pittsburgh with a Bachelor's degree in Environmental Science. She has always been interested in issues involving the environment. Living in a small rural town in Washington County PA, Cathy has a front row seat to the gas boom. She actively encourages local and state regulatory agencies to consider the scientific data and cumulative health impacts of industry and to take steps to protect the environment and the citizens.

Lisa Graves Marcucci is Pennsylvania Coordinator, Community Outreach with the Environmental Integrity Project (EIP). Lisa has been working with frontline shale gas communities since 2010. Her work includes conducting extensive reviews of permit files, helping to identify violations, and organizing citizen testimony at numerous public hearings before local, state and national agencies. She is a life-long resident of Pittsburgh's Monongahela Valley and is a graduate of Duquesne University.

Section 7. Budget (20 points)

A. Budget Detail (5 points)

The proposed budget for the project is $430,001. FracTracker Alliance is requesting $430,001 in grant funding from EPA. FracTracker will provide fiscal management and program oversight to ensure that the goals of the project, as outlined in this application, are achieved in a timely manner. FracTracker and Environmental Integrity Project will work together on project specifications and procurement processes. Staff from CREATE Lab, Environmental Health Project, and Robinson-Smith AirWatch will provide technical assistance as needed.

PERSONNEL – FracTracker Alliance	EPA Funding
SALARIES AND WAGES	
Executive Director @ $65/hr, X hr/month, 18 months	$8,450
Great Lakes Program Coordinator @ $55/hr, X hr/month, 18 months	$24,750
Air Monitoring Intern @ $X/hr, 10 hr/week, x weeks	$13,000
TOTAL PERSONNEL	**$46,200**
FRINGE BENEFITS	**EPA Funding**
14% of Direct Personnel Costs	$6,468
TOTAL FRINGE BENEFITS	**$6,468**
TRAVEL	**EPA Funding**
Mileage for PM: 117.33 mi/month @ $.585/mi x 18 months	$1,236
Mileage for Intern: 200 mi/month @ $.585/mi x 12 months	$1,404
Food Stipend for PM: $100/month x 18 months	$1,800
Lodging for PM: 5 trips @ $200 per trip	$1,000
TOTAL TRAVEL	**$5,440**
EQUIPMENT	**EPA Funding**
1 Fly Motion GIS320 Camera (measures 200+VOCs including benzene and methane)	$74,000
4 Sensit SPod @ $15,538/unit	$62,152
TOTAL EQUIPMENT	**$136,152**

SUPPLIES	EPA Funding
12 Sorbent Tube Passive Air Samplers including costs for four pollutant analysis $2380/unit	$28,560
Sorbent Tube Monitoring Mounting Supplies	$500
12 Sorbent Tube Monitor Shelters @ $135/unit	$1,620
4 tVOC monitors cost @ $400/unit	$1,600
15 Summa Canisters @ $275/unit	$4,125
tVOC monitor mounting supplies	$500
Outreach Materials	$500
TOTAL SUPPLIES	**$37,405**
OTHER	**EPA Funding**
Subaward Costs - CREATE Lab	$97,600
Subaward Costs - Environmental Health Project	$11,000
Subaward Costs - Environmental Integrity Project	$69,260
TOTAL OTHER	**$177,860**
INDIRECT	**EPA Funding**
Federal Indirect Cost Rate x Personnel = Indirect Costs (Federal Negotiated Indirect Cost Rate = 20%)	$20,476
TOTAL INDIRECT	**$20,476**
TOTALS	**EPA Funding**
TOTAL FUNDING	**$430,001**
TOTAL PROJECT COST	**$430,001**

Annual Salaries: Executive Director – $92,000; Great Lakes Program Coordinator – $76500 ; Air Monitoring Intern – N/A

B. Reasonableness of Costs (10 points)

The personnel costs will be used to cover the time of three FracTracker staff necessary to carrying out the program: Shannon Smith, Executive Director, who will be responsible for grant administration and program oversight; Ted Auch, Great Lakes Program Manager, who will be responsible for project management and aerial air monitoring; and the Air Monitoring Intern who will be responsible for quality assurance and quality control.

Equipment

The **GIS-320 Optical Gas Imaging (OGI) Camera** purchased for this project allows the user to measure methane, benzene, ethylene, toluene, xylene, heptane, pentane, octane, and over 200+ VOCs within the sensitivity needed to comply with the US EPA proposed rule on pollution from the oil and natural gas industry which highlights the need for "innovative methane detection technologies and other cutting-edge solutions". Additionally, this camera will allow for the detection of small leaks, which tend to be prevalent on well pads and compressor stations, by way of its noise reduction filter and FLIR-patented High Sensitivity Mode (HSM). The GIS-320 is ideal for detecting VOCs in remote areas and/or where infrastructure spread out over a large area which is exactly the type of up and midstream infrastructure that has been concentrated in Washington County, Pennsylvania. FracTracker will attach this camera to the DJI Matrice 200 Series Drone that they already own, and visit the Robinson/Smith Township project area approximately 12 times over the course of a year to capture HAP pollution data during predicted weather inversions, and during industrial operations that cause pollution events like flaring and pipeline pigging. These will be added to periodic data summaries sent to government stakeholders and residents in the area.

The **Sensit SPod** system ensures SUMMA canister samples are taken when pollutants of concern are present while providing additional weather data that allows for more accurate analysis of potential sources.

Supplies

EPA Method 325 uses passive sorbent tubes to monitor for HAPs and VOCs along fence lines at defined points around the perimeter of petrochemical refineries. PA's shale gas development is part of the regional petrochemical buildout, making this type of monitoring applicable. The low-cost **Airviz tVOC** monitors purchased for this project provide valuable information about air pollution trends. They are useful indicators to inform residents when it is time to use TO-15 sampling methods to speciate HAPs in the air. These monitors will also be used as supplemental information for data summaries alongside Method 325 sampling, to see continuous monitoring trends that may be left out of 2-week passive sampling averages. The real-time availability of this data makes them particularly useful to residents who will make decisions to mitigate pollution exposure. TO-15 analysis of **SUMMA canister** samples allows for the collection of highly reliable data relatively easily and with a variety of time frames ranging from grab samples to 24-hour samples. This combination of flexibility, ease of collection, and quality allows project partners to better analyze and describe to the community the health effects associated with air toxics found in the ambient air. The GIS-320 is primarily a tool for measuring HAPs and is not meant to provide high-quality aerial imagery or footage beyond its measurement capabilities. We therefore are suggesting that the most ideal way to supplement this would be to simultaneously mount alongside the GIS-320 a **Zenmuse X5S 5.2K camera** allowing us to merge high-resolution (i.eProRes and 4.2Gbps max) imagery and footage with the VOC data generated by the GIS-320.

Subawards

The contributions of the project partners are crucial in the completion of this project. Each of the sub awardees are firmly committed to the project (see attached letters of commitment). We calculated the subaward amounts based on the amount of time that each partner group will dedicate to the project.

CREATE Lab will maintain multiple, publicly accessible air pollution data tracking websites, including *Robinson/Smith AirWatch* and support creation of data summary reports.

EHP will provide data analysis through AirView to interpret and help communicate information collected by the air quality monitors deployed.

EIP will provide air monitoring using EPA Method 325 ambient sorbent tubes in Robinson/Smith Township communities, carrying out sampling at 12 locations, alongside existing AirViz tVOC monitors, provide data analysis and facilitate communications with community members, PA DEP and local officials via webinars and fact sheets.

C. Expenditure of Awarded Funds (5 points)

FracTracker will expend awarded grant funds in a timely and efficient manner in accordance with our grant administration procedures. FracTracker has written procedures relating to the planning and budgeting process; authorizing spending; timekeeping and labor documentation. In addition, FracTracker completes an annual review and update of policies and procedures documents. FracTracker's financial tracking system shows spending within and across each fiscal year, and we perform regular reconciliations of financial accounts. We are able to relate our financial data to performance accomplishments to ensure accountability to various funding sources. FracTracker demonstrates effective control and accountability for all cash, property and other assets through yearly independent audits. FracTracker's internal controls are in compliance with the U.S. Constitution, Federal statutes, regulations, and the terms and conditions of the Federal awards, as well as the guidance in "Standards for Internal Control in the Federal Government" issued by the Comptroller General of the United States. FracTracker's preventative controls to limit risk of asset loss include segregation of duties among the Executive Director, Development Manager, Accountant, and Board of Directors. Our accountant verifies budgets for each grant or assistance agreement, and tracks spending through monthly reports, submitted with receipts and approved by the Executive Director. The Board reviews and approves each individual budget by line item, along with FracTracker's total expenditures and revenue on a quarterly basis. If awarded, FracTracker will monitor all expenses related to the EPA air monitoring grant on a monthly basis and comply with all EPA reporting requirements.